BUSINESS WEEK

APR. 10, 1948

USINESS
VEEK
NDEX

Paul L. Davies: For the trade, a food freezer, for stockholders, a melon slicer (page 6)

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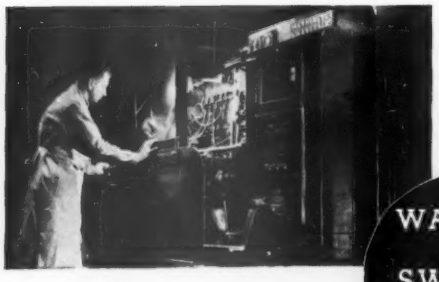
The aims of a company and its workers are exactly the same

The workman wants	The company wants
A steady job	Steady (in fact growing) employment because that indicates growing demand on which a company depends for success.
High wages	High wages (so long as they are earned) because that is proof the management is competitive with or better than other management in the area.
Opportunity for a better job	Opportunity for its workmen to progress, for that is proof the company is growing. Top management's greatest problem is to find men capable of greater and greater responsibilities.
Comfortable, safe working conditions	Comfortable, safe working conditions because any intelligent management knows that without them they won't get good workmen. And management wants such conditions, too, because most management consists of decent men who want decent things for decent people.
Lower prices for what he buys	Lower prices, because only as a company can provide better and better products at lower and lower prices can it hope to compete, stay in business, and grow.



WARNER & SWASEY
Machine Tools
Cleveland

TOO many people have been telling you that your interests and your company's are opposed. Next time you hear that, ask yourself what the man who says it has to gain by causing conflict. You'll be surprised.

Actually you and your company are in the same boat, anxious for the same things.

YOU CAN MACHINE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY TURRET LATHES, AUTOMATICS AND TAPPING MACHINES

...it's so easy to listen

And since 1941—when this photograph was made—it has become even easier to listen to CBS.

That's one reason why one network, CBS, with its 99,000,000 different listeners each week, reaches more people than read *all* the magazines published in the United States.

For CBS today has achieved the best "balance" of facilities in all Radio; with more high-powered, and fewer low-powered stations, than any other network. And since 1941 almost every CBS station—150 out of 162—has made specific major technological improvements.

In the past year alone, CBS stations have added 230,000 watts of *extra* power; far more power than any other network increase—almost as much added power as all the other networks *combined.*

No wonder that CBS delivers its large audience to advertisers at a lower cost than any other network. And that latest reports show that the largest individual audiences in *all* radio are the CBS audiences of the LUX RADIO THEATRE in the evening, the ARTHUR GODFREY SHOW in the daytime.
And that more of the hundred largest users of Radio are on CBS than on any other network.

Columbia Broadcasting System

—where 99,000,000 people gather every week

These Battery Trucks MAKE Money!

SURE, we put in our battery industrial trucks to economize on operating costs—and they've done that . . . reduced damage and injuries, eliminated demurrage, freed hands for other work. And by tiering stock to the ceiling, they've saved us the expense of building two new storage bays. But more important, they've given us new earning power, increasing our overall plant productivity nearly 25 per cent without a single foot of new floor space.

These battery trucks can keep the pace 24 hours a day every day, and their power characteristics can't be beat: instant starting; quiet operation; no fumes; no power used during stops. And remember, each of their electric motors has only one basic moving part—that means trouble-free operation.

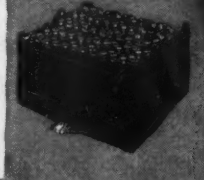
Of course, we've standardized on EDISON Nickel-Iron-Alkaline Batteries for powering them. EDISON has been the most rugged, dependable and long-lasting battery on the market for the past half-century . . . the kind we can bank on to keep our material-handling system—*and our record-breaking production schedule*—right up to snuff!

ADVANTAGES OF EDISON NICKEL-IRON-ALKALINE BATTERIES: Durable mechanically; foolproof electrically; easy to maintain; withstand temperature extremes; can stand idle without injury.

EDISON

Nickel • Iron • Alkaline

STORAGE BATTERIES



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THE WORD IS GOING AROUND!

by Mr. Friendly

Flash! Word sweeps nation!
Word heard in New York, Boston, Chicago, L. A. . . .
Word sends more businessmen to American Mutual than ever before!
What is the word? Listen . . . Listen!
"American Mutual is a friendly company to do business with!"
"They settle claims quickly, fairly!"
"They've got a special service* that reduces accidents."
"They helped increase profits in my plant!"
"Even with rising prices, they still save you 20% on premiums!"
Yes! The word's going around and more industries are signing up with American Mutual than ever before in our entire history.
We thought you'd like to know about it, just in case you didn't get the word!

A M

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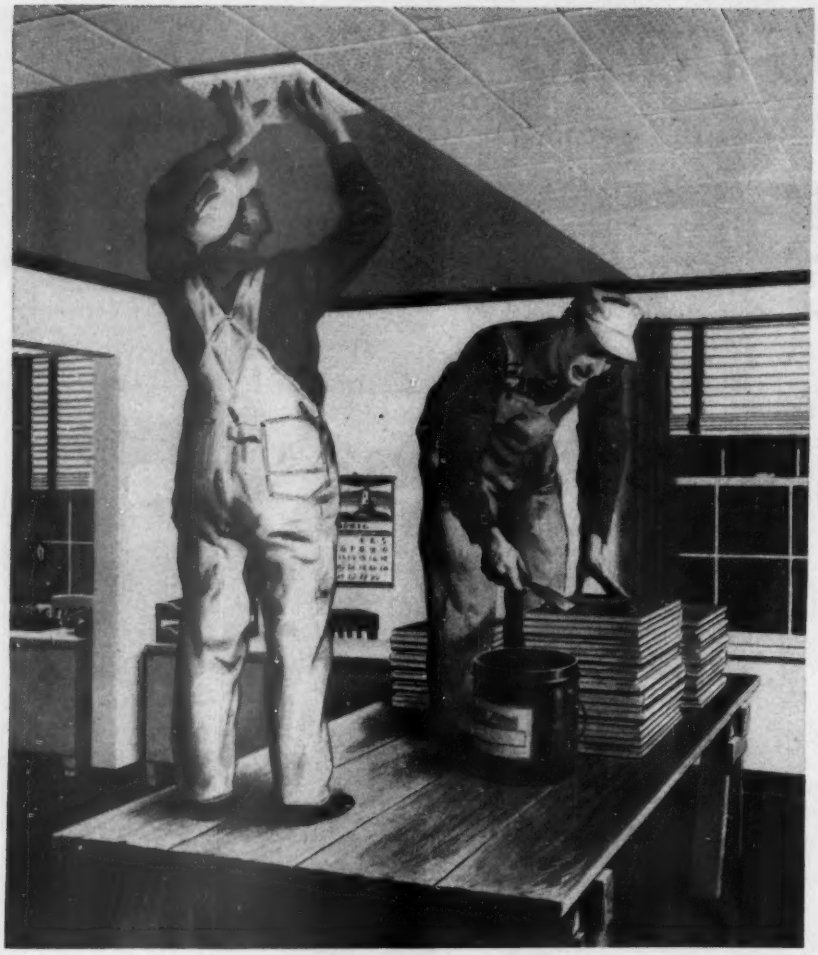
***Accident prevention based on principles of industrial engineering.*



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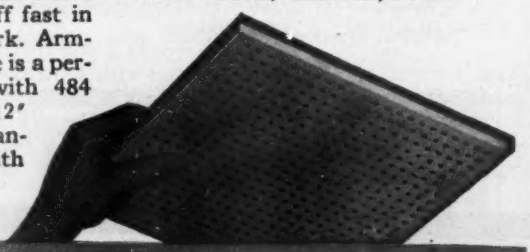

ARMSTRONG'S CUSHIONTONE

Made by the Makers of Armstrong's Linoleum and Asphalt Tile

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THE COVER

Like the man who came to dinner, Paul Lewis Davies didn't intend to stay. As vice-president of American Trust Co., San Francisco, he had helped Food Machinery Corp. to market its first securities. For a closer look he agreed to move his desk to the Food Machinery plant in neighboring San Jose. That was 20 years ago, when Davies was 29. The desk is still there—in the front office now.

• **Growing**—Though still a director of the bank, Davies is now as much a part of Food Machinery Corp. as its widely used pressure cooker. From treasurer he rose to the presidency in 1940—succeeding J. D. Crummey, his father-in-law. It was the Davies hand that pushed sales from $13.5-million in 1941 to $240-million in 1945 and a peacetime high of $77-million last year.

Davies is a tireless worker. He's at his desk before 8 in the morning, rarely snaps off the lights before 7 in the evening. That gives him plenty of time to enjoy his job and the people around him. "Nobody around here takes his job too seriously," he says. "We're a rather intimate group and we like to have a little fun at our work."

• **Profitable Fun**—The formula produces a little fun for the owners, too. Somebody of statistical bent figured out that an original investment of $2,200 for 100 common shares would have grown to $20,500 since 1928, not including cash dividends. In only one year (1932) has the corporation dipped into red ink, and in only two (1933-1934) have the common stockholders missed a dividend. Last year they collected $2 a share—or the equivalent of $1 a share on the split stock now outstanding. Payments this year on the new stock have been made at a 37½-cent quarterly rate ($1.50 a year).

When he isn't having fun at San Jose, Davies is having fun at his 3,000-acre grain and cattle ranch near Modesto.

—*Complete story on Food Machinery Corp. starts on page* 8

BUSINESS OUTLOOK

Take a look at the "John Lewis Slump" in business activity as measured by the Business Week index (chart, page 13).

And that's just a starter—unless the coal strike is settled quickly. The index—so far—measures only (1) the drop in movement of coal and other goods by rail and (2) first influences of the strike on steel.

Steel output will be down much more sharply in the next few days.

From that point, effects on metalworking industries begin to fan out. Plant managers now are face to face with a steel famine.

•

Legal tactics of the United Mine Workers this week indicated Lewis will let the country go hang while he tests the Taft-Hartley Act (page 25).

Before the coal strike, steel production hit a postwar high of about 1,750,000 tons a week. Now it probably is below 1,500,000. And, from here on, it goes into a nosedive.

Only speedy court action can be counted on to stem the tide.

Even so, coal stocks will be so depleted that Lewis would hold a big club over industry after the 80-day T-H waiting period (BW-Apr.3'48,p104).

•

Effects of the coal strike obscure other developments in business.

For example, the average corporation executive doesn't have to worry much about what is happening in textiles and shoes if he can't tell what is going to be the production trend in steel and autos.

Management is justified in just waiting out the strikes to see what the European Recovery Program and the preparedness drive will bring.

•

Export-import figures for the first two months of 1948 give some idea of the job Paul Hoffman stepped into this week as ECA chief.

Exports were down from $2,262-million last year to $2,177-million for the two months this year. Moreover, both January and February exports were below the smallest month in 1947.

This shows how dollar shortages are pinching our customers.

On the favorable side, however, imports are rising. January, at $546-million, was the largest month since the end of the war. February, in turn, topped it with a total of $582-million. The two months exceeded the same period a year ago by more than $160-million.

Rising imports at least reduce the dollar deficits abroad.

•

Price trends will have a major bearing on how much western Europe's ERP dollars can buy here as well as on our own purchasing power.

Our price break was confined to the first half of February. Movements over the next six weeks were erratic—but tending upward.

Signs of strength in domestic metal markets (BW-Apr.3'48,p9) were amply confirmed this week. Lead was marked up 2½¢ a lb.

The advance to 17½¢ a lb. in New York erased the discount at which domestic lead had been selling from the foreign product (with allowance for the duty of a little over 1¢ a lb. on imports).

Tightness in lead is heightened by the protracted strike in Mexico.

•

Strongest of the agricultural commodities is cotton. Its price is right back where it was before the February break.

One factor in the rise has been improvement in export prospects. The

trade is counting on ERP funds to boost shipments. In addition, Congress is considering a bill to finance exports to Germany and Japan.

But cotton is not without its strong points at home. Mill men figure they will keep busy making uniforms for the enlarged armed forces.

•

Cotton's bounce from 31½¢ a lb. to around 36¢ is particularly important at this time. Farmers are making up their minds how much to plant; the higher price will probably mean more acreage (supplies of labor, seed, and fertilizer permitting).

•

One who believes more money for the armed services will start prices up again is Martin R. Gainsbrugh, chief economist of the National Industrial Conference Board.

Addressing the Controllers Institute of America this week, he said: "It will not take much of an increase in the present military budget to swing the balance toward renewed inflation."

Of course, stiffened price ideas (BW-Mar.27'48,p9) could conceivably have the starch knocked out of them in times like these.

An impressive licking of the Communists in Italy's elections would lessen the urgency of the preparedness drive here. That is particularly true in view of concessions won from Stalin by Finland (page 111).

If Congress then were to move slowly, industries waiting for war orders to take up their slack would get jittery. Prices could crack.

•

Price trends over the rest of the year will be of absorbing interest to the nation's farmers.

Despite the break in February, farm income compares favorably with a year ago. The Dept. of Agriculture estimates that the first four months' farm income was $8.3-billion, 3% higher than a year ago.

After April of last year, however, farm prices went up and up without major interruption. Thus, for the rest of 1948, comparisons will be with super-prosperous times a year ago.

•

Farm prices won't be as strongly supported this year as last.

Domestic demand probably will be about as large. If prices average below 1947 the rest of this year, consumers might even take a larger tonnage.

However, exports to western Europe almost certainly will be smaller. In fact, the Dept. of Agriculture can see an export drop of 15% to 20% in the 1948-49 crop season due to better crops abroad.

The worst now mentioned for farmers' cash income, however, is a decline of 10% in calendar 1948. That would mean better than $27-billion this year against more than $30-billion in 1947.

•

Department stores ended this Easter season in better shape than a year ago, according to all soundings of sentiment (page 21).

Stocks at the beginning of March were around 11% higher than last year in dollar value. Dollar sales in the next four weeks topped the same 1947 period by 9%. (The gain is less if you average in April's first week due to the later Easter a year ago.)

That doesn't look so good at first glance. But stores were playing it safe. Outstanding orders were 5% less on Mar. 1 than in 1947.

Stores didn't replace goods sold off shelves as fast as in 1947.

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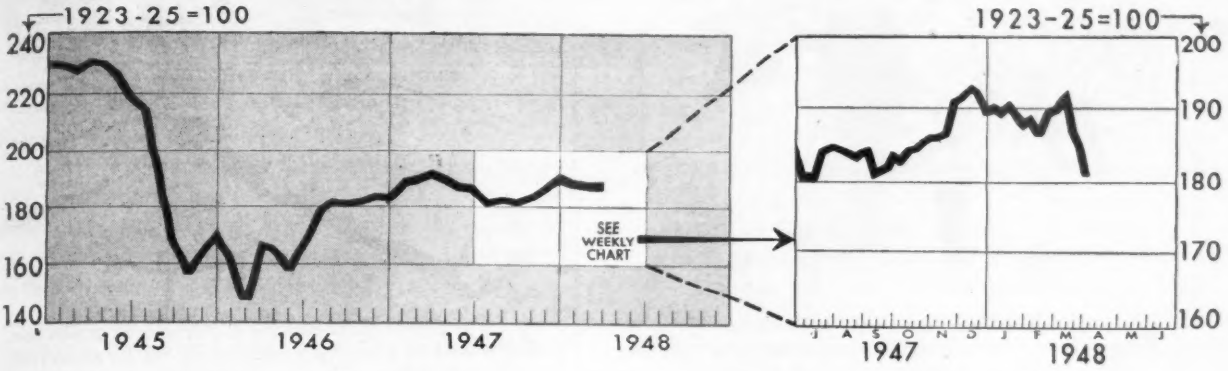
FIGURES OF THE WEEK



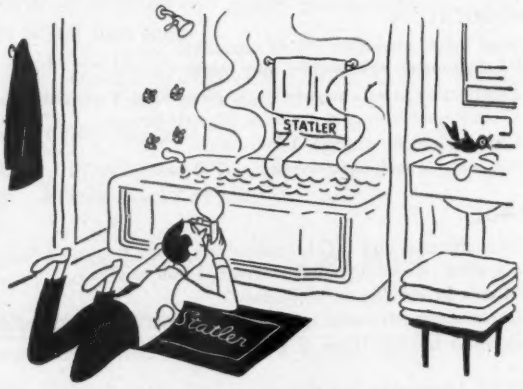
	§ Latest Week	Preceding Week	Month Ago	Year Ago	1941 Average
Business Week Index (above)	*180.9	†185.3	191.4	189.7	162.2
PRODUCTION					
Steel ingot operations (% of capacity)	84.4	†88.3	96.6	95.1	97.3
Production of automobiles and trucks	105,046	†107,284	108,343	97,385	98,236
Engineering const. awards (Eng. News-Rec. 4-week daily av. in thousands)	$22,534	$22,625	$22,598	$17,716	$19,433
Electric power output (million kilowatt-hours)	5,037	5,065	5,293	4,693	3,130
Crude oil (daily average, 1,000 bbls.)	5,389	5,377	5,353	4,892	3,842
Bituminous coal (daily average, 1,000 tons)	353	727	2,154	2,025	1,685
TRADE					
Miscellaneous and L.C.L. carloadings (daily average, 1,000 cars)	83	83	82	85	86
All other carloadings (daily average, 1,000 cars)	28	34	52	53	52
Money in circulation (millions)	$27,780	$27,851	$28,024	$28,247	$9,613
Department store sales (change from same week of preceding year)	+17%	+9%	+4%	+10%	+17%
Business failures (Dun & Bradstreet, number)	91	101	113	71	228
PRICES (Average for the week)					
Spot commodity index (Moody's, Dec. 31, 1931=100)	412.4	410.9	409.2	418.3	198.1
Industrial raw materials (U. S. Bureau of Labor Statistics, Aug., 1939=100)	270.5	268.7	269.7	282.4	138.5
Domestic farm products (U. S. Bureau of Labor Statistics, Aug., 1939=100)	366.7	368.4	373.4	342.5	146.6
Finished steel composite (Steel, ton)	$81.14	$81.14	$81.14	$69.82	$56.73
Scrap steel composite (Iron Age, ton)	$40.25	$40.25	$39.75	$35.42	$19.48
Copper (electrolytic, Connecticut Valley, lb.)	21.500¢	21.500¢	21.500¢	21.500¢	12.022¢
Wheat (Kansas City, bu.)	$2.44	$2.38	$2.53	$2.61	$0.99
‡Sugar (raw, delivered New York, lb.)	5.40¢	5.40¢	5.42¢	6.19¢	3.38¢
Cotton (middling, ten designated markets, lb.)	35.93¢	35.15¢	33.91¢	34.82¢	13.94¢
Wool tops (New York, lb.)	$1.794	$1.820	$1.833	$1.550	$1.281
Rubber (ribbed smoked sheets, New York, lb.)	22.20¢	21.19¢	19.90¢	24.25¢	22.16¢
FINANCE					
90 stocks, price index (Standard & Poor's Corp.)	120.5	117.7	111.6	119.2	78.0
Medium grade corporate bond yield (30 Baa issues, Moody's)	3.50%	3.53%	3.53%	3.16%	4.33%
High grade corporate bond yield (30 Aaa issues, Moody's)	2.80%	2.82%	2.83%	2.53%	2.77%
Call loans renewal rate, N. Y. Stock Exchange (daily average)	1½%	1½%	1½%	1½–1½%	1.00%
Prime commercial paper, 4-to-6 months, N. Y. City (prevailing rate)	1⅜%	1⅜%	1⅜%	1%	½–¾%
BANKING (Millions of dollars)					
Demand deposits adjusted, reporting member banks	45,340	46,391	47,296	44,482	††27,777
Total loans and investments, reporting member banks	62,221	63,232	63,494	62,979	††32,309
Commercial and agricultural loans, reporting member banks	14,417	14,484	14,540	12,271	††6,963
Securities loans, reporting member banks	1,666	1,560	1,595	1,937	††1,038
U. S. gov't and gov't guaranteed obligations held, reporting member banks	34,433	35,469	35,845	38,850	††15,999
Other securities held, reporting member banks	4,335	4,342	4,210	4,109	††4,303
Excess reserves, all member banks	600	720	1,070	563	5,290
Total federal reserve credit outstanding	21,607	21,429	21,851	22,758	2,265

*Preliminary, week ended April 3rd. †Revised. ‡Ceiling fixed by Government. §Date for "Latest Week" on each series on request. ††Estimate (B.W.—Jul.12'47,p.16).

1. Candid Cal, the camera fan, with flash bulbs in his vest, came flashing into Statler, where you really *are* a guest. "Your hospitality is great, it puts me at my ease—and *I'M a genius,*" he proclaimed. "Just watch the birdie, please.

2. "The perfect pic of happiness," the candid genius said, "would be a smiling gentleman on Statler's wondrous bed. But when I pose the model, eight hundred springs and more put him to sleep—and when I shoot, his smile has turned to snore.

3. "For perfect composition and distinctive eating pleasure, the meals prepared by Statler chefs are definitely treasure. When I sit down to one of them, my art sure takes a beating. Here, waiter, *you* take pictures. *I'm* much too busy eating.



4. "For lovely scenes in Statler's bath I never have to grope. I snap the stacks of snowy towels, or cakes and cakes of soap, or all the steaming water that's a photogenic drama. But no," exclaimed the camera fan, "I'll shoot a panorama.

5. "Now picture *you* at Statler when the music starts to play; when singers, dancers, famous bands combine to make you gay. Or focus on the friendliness you find in this hotel. And candidly," said Candid Cal, "you'll find each picture swell."

HOTELS STATLER IN ***BOSTON • BUFFALO • CLEVELAND DETROIT • ST. LOUIS • WASHINGTON***

STATLER-OPERATED ***HOTEL PENNSYLVANIA*** NEW YORK ***HOTEL WILLIAM PENN*** PITTSBURGH

P. S. Here's a tip for your trip. Try to plan your visit to a Statler for Friday, Saturday or Sunday—that's when you'll have the best chance of getting the kind of accommodations you want!

WASHINGTON OUTLOOK

INFLATION is frightening Washington again. Increased war spending and the tax cut rob the government of its strongest deflationary weapon—ability to pull large sums of money out of the economy.

Last February, the economists were pretty sure the worst of the inflation was over. After the commodity price break, some of them were worrying about a recession. Even the most bullish expected at least a temporary leveling off.

They saw: (1) a huge federal cash surplus squeezing down on bank credit; (2) a conservative tone in business buying; (3) consumers inclined to wait for lower prices.

•

Now all that's changed. Even the government economists, who know how small the armament stepup actually is to date, have caught the fever that's stirring the business community since Truman's St. Patrick's Day message.

Here's what they look at:

The federal surplus—now running at $8-billion to $10-billion a year—dwindling next fiscal year to a maximum of $3-billion, probably less.

By official arithmetic, the Treasury already faces deficit spending next year. Actually it isn't that bad yet. As usual, Treasury Secretary Snyder's estimates of revenue are too low—about $4-billion too low for fiscal '49.

So even though congress seems likely to vote more money for armament than Truman has asked for, there's still a margin in next year's kitty.

But the margin is pretty small by comparison. And it would be upset any time Truman's psychological offensive against Stalin calls for raising the ante another chip—the lend-lease we told you about last week would do it (BW-Apr.3'48,p19)

Also, there's a technical point you can't overlook: for the next nine months, until the big first-quarter tax checks start rolling in in 1949, the government will actually be increasing its debt to pay current bills.

This opens the way for another inflationary bulge in bank credit. One estimate we get is that the increase in loans might equal last fall's $10-billion-a-year rate.

•

For the longer view, there's this question: Will this be more of the kind of inflation that really just looks like prosperity? Or will it be the frightening, runaway kind?

The government boys think the country has never been closer to the edge than now; that it wouldn't take much more to bring on something disastrous—unless controls are applied.

So you'll be hearing renewed talk from Truman in the next few weeks about price controls, rationing, and the like—the same as his November special-session program, born of the last sharp upswing.

We're still doubtful about any effective controls in this election year. But if any come, the way things shape up now, they're more likely to result from inflation troubles than from any physical material-allocation needs of munitions production.

•

AIR POWER is one form of war preparedness on which Congress is determined to go further than Truman is now.

The issue came out into the open this week: Congress threatened to delay action on Truman's call for men until it can vote more planes.

The military leaders, too, are in all but open revolt against Truman's psychological kind of offensive. For example, hear Secretary Royall's Army Day Speech: ". . . We cannot fool or bluff any important nation in the world today . . . Gestures and feints and halfway measures are not enough. They will do more harm than good. They will encourage aggression."

Truman's decision to hold the stepup in military spending to another $3-billion stems from his—and Marshall's—determination not to start preparing for war, yet. He still hopes his Mar. 17 threat of men, not money, will do the job; and he fears the economic effects of pumping out more money if it isn't necessary.

Air-minded congressmen—remembering that enemy generals credited American air power with winning the last war—believe Stalin would heed U. S. planes more; also, money for planes is politically more palatable than calling up men.

So you can count on Congress to vote a start toward the 70-group air force demanded in the Finletter and Brewster reports, Truman notwithstanding. Dollarwise this adds only $500-million or so to the increased military budget for fiscal '49; the big cost would come later.

But the draft of men still will go through, too.

•

THE LEND-LEASE TALK of arming the five-nation Western Union, has taken a new turn.

An outright military alliance—in which the U. S. guarantees the security of member nations—is in the picture now. This would mean scrapping

the historic American policy of "no entangling alliances."

But that's what the new European organization formed at Brussels last month believes it must have; the countries asked for it semiformally this week. And Marshall agrees it's necessary (BW-Mar.6'48,p15).

Inside the State Dept. it's just a question of timing: (1) Should alliance precede, or follow lend-lease arms shipments? (2) How much more threatening would U. S.-Russian relations have to get before the country would accept such an about-face in foreign policy?

•

Marshall leans toward making an alliance first.

Actually, an alliance offers stronger protection to western Europe than shipment of a few billion dollars worth of munitions. In fact, it might make an expensive lend-lease operation unnecessary.

And that would be a relief to Truman's domestic advisers, now stewing over the inflation dangers of another arms program.

Internationally, too, the alliance would be a handier tool. Each time another nation feels threatened—Norway, for example—Marshall would have a ready answer: Enlist in Western Union and come under our guarantee.

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Congress, on the other hand, would probably vote lend-lease more readily than a permanent alliance.

In the end, Vandenberg will call the play. Marshall knows that this is one step that must have bipartisan sponsorship right from the start.

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STOCKPILING is going to hurt you sooner than any other part of the munitions program.

It's going to be bigger, and more ruthless, than up to now.

Hargraves' Munitions Board will have more than three times as much money to spend in fiscal '49 as this year. More important, Truman has decided to stockpile even goods already in short civilian supply.

That means the Commerce Dept. no longer can stand between you and the military buyers; for two years now Harriman has kept the Munitions Board from raiding the copper market, for example.

•

The only help Commerce can give business now is to steer military buying into incentive deals designed to increase total production. The plan is to make long-term contracts that will induce domestic and foreign suppliers to develop new sources.

That's the purpose of Truman's request to Congress this week for $375-million in long-term contract authority.

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PLANNING FOR MOBILIZATION is pulling in some of the big names from WPB days.

Both Charles Wilson of General Electric and Ferdinand Eberstadt, once vice-chairman of WPB, are commuting between New York and desks in the Pentagon.

And Sidney Weinberg, who used to round up industrialists for the war agencies, is recruiting again.

Ex-WPB Chairman Krug also is edging into this paper-planning work. However, he isn't interested in giving up his post at Interior.

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ATOM PARADOX: While the civilian Atomic Energy Commission concentrates on bomb-making (page 47), the military focuses on harnessing atomic energy for power.

The Air Force's NEPA project, to develop an atom-powered airplane, has been under way for over a year.

Now the Navy is about to launch a NEPS—Nuclear Energy for the Propulsion of Ships. The project has the approval of Vannevar Bush's Research & Development Board; the Navy is looking for a contractor to take on the development job.

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MEXICO WANTS AMERICAN OILMEN to come back.

Ambassador Thurston has brought to Washington a Mexican proposal; in effect, it offers to hire American companies to operate Mexico's nationalized industry.

Oilmen aren't lured by the terms—they would be required to supply all capital and equipment, drill where Mexico told them. They would get only 10%-20% of net profits from any producing wells.

However, such government officials as Forrestal and Marshall are encouraged by Mexico's overture. They are interested in pushing development of Western Hemisphere oil; they are discouraged over dwindling production from expropriated Mexican fields.

Next step: an attempt to get American oilmen and Mexico's government operating corporation into direct negotiations.

BUSINESS WEEK

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PAUL G. HOFFMAN: As head of Economic Cooperation Administration, the ex-president of Studebaker will have the authority—and the headaches—of the Marshall Plan

How Hoffman Will Run ECA

Methods of doing business abroad will change little; U. S. suppliers will continue to work almost entirely through private channels. Hoffman will hold purse strings, make final decisions.

The $6.1-billion foreign aid program signed by the President last week won't turn methods of doing business abroad topsy-turvy.

When Paul G. Hoffman's Economic Cooperation Administration (ECA) gets going, it won't place orders. So don't pack a bag and hurry to Washington.

• **Private Channels**—U. S. suppliers will continue to work almost entirely through private channels. The notable exception at this time is grain; almost all exports will stay in the hands of Agriculture's Commodity Credit Corp.

But in the case of the average supplier, ECA won't be coming into his life except to see that he gets paid for the reconstruction-relief goods he sends to Western Europe or China. As for the military part of the program—up to $400-million worth of munitions for Greece, Turkey, and China—ECA won't be in the picture at all. This end will be handled through regular army procurement channels, as is now being done with Greek-Turkish military supplies.

The flow of farm and factory goods to non-Communist Europe and China doesn't have to wait until cabinet-ranking Paul Hoffman actually sets up his ECA. Studebaker's ex-president is a whirlwind organizer. But he's got enough savvy to know that he won't be able to organize fast enough to keep present supply lines moving without a hitch.

• **Backstop**—So whether Congress likes it or not, Hoffman will have to be backstopped by the State Dept. for a while—by the people who have been handling interim aid, the U. S. foreign relief program, and Greek-Turkish aid.

They have been in business about a year now and know the ropes. Already they have piloted some $1-billion of reconstruction-relief and military goods to Austria, France, Italy, China, Trieste, Greece, Turkey.

• **The Hard Core**—Whether they are temporarily borrowed from State or remain there, they'll be the hard core of ECA's stopgap organization. And they will operate without a break. The Reconstruction Finance Corp. is ready with upwards of $1-billion to keep the aid wheels moving, pending congressional appropriations.

It's a good guess that stopgap operations under the new legislation will differ only in degree from what State's people have been doing right along.

• **Other Areas**—Thus, in addition to those areas already getting assistance, a few others—United Kingdom and The Netherlands—will be brought in. Most of the aid sent so far has been food, feed, fuel, and fertilizer. Now more cotton and petroleum will be showing up. First of the metals called for may also go out while the stopgap boys are pinch-hitting for ECA. But shipments of machinery and other capital goods aren't in the near-term picture.

During this period, U. S. suppliers can look for two major types of transactions. Both have been used under the interim aid and foreign relief programs. The first is a form of State trading, is used in buying certain food products, notably grain.

• **State Trading**—It works like this:

Suppose the State Dept., in conjunction with advices from its people in France, decides that $1-million of wheat flour should be shipped to that country.

State prepares a letter of allocation transferring $1-million from a so-called "master appropriation" set up in the Treasury Dept. to the Dept. of Agriculture's CCC.

As buying agent for State, CCC places the orders, performs the necessary inspections, pays the bills and supervises the loading. When the flour

ATOMIC ENERGY—1948

Much secrecy still surrounds the newest source of energy—the atom. Secrecy breeds curiosity—and questions.

Where does the program stand today? What is the status of our bomb production? Are we starting to commercialize on the atom's peacetime possibilities?

These questions and others are answered this week in a Special Report to Executives (page 47). The report is based on first-hand visits by Robert B. Colborn of McGraw-Hill's Washington Bureau to all plants and laboratories working on the atomic energy program. It offers to businessmen a close look at a powerful war and peacetime project.

reaches France, it is unloaded under the supervision of State Dept. representatives.

• **Commercial Channels**—Another type of buying uses normal commercial channels, is known as a reimbursable transaction. Here's how it works:

State gives Italy a green light to buy 50,000 metric tons of coal here for use in steel production there. The Italian government allocates this coal to Ilva, Falck, Terni, and other Italian steel companies. At the same time, it gives them import licenses.

The steel companies are then on their own. They contact representatives of U. S. producers and negotiate contracts. The suppliers then apply for export licenses from the Dept. of Commerce. Since the coal is part of an approved government program, issuance of the license is routine.

Once the coal is delivered, the U. S. suppliers get paid out of dollars laid aside by Italy at the time it issued the import licenses.

When the Italian government supplies State with documentary proof that the coal was delivered—and that it met specifications as to the quality and price—it is reimbursed by this government.

• **Other Methods**—ECA is going to keep both these types of transactions in the recovery picture. But as it gets rolling, it will doubtless add other methods of financing the goods.

For example, the law lets the agency's administrator set up accounts in other government agencies or in banking institutions. In connection with approved supply programs, participating countries or their representatives can make withdrawals from such accounts.

Also, letters of commitment may be issued to importers against these accounts. Together with private exporters, government agencies are now working out a plan to make these letters of commitment discountable at banks, like regular commercial paper.

Thus, a manufacturer working on an order that's likely to take time—a tailor-made compressor, say—won't be tying up his working capital until delivery.

• **Loans and Gifts**—At this stage, there isn't any hard-and-fast way of telling how much of the $6-billion-plus will be loaned and how much will be given away. According to estimates, anywhere from 20% to 40% of the help will be in the form of loans.

If Congress' opinion means anything, at least $1-billion will represent collectable loans. That's how much the lawmakers expect will be handled by the Export-Import Bank.

• **Hoffman's Purse**—However, the purse strings here will be in Hoffman's hands. If Norway, for example, is to be loaned $3-million for expansion of hydroelectric power facilities, ECA will allocate the funds to the Export-Import Bank; the bank will then set up the credit and administer it.

The money for this part of the program doesn't need to be appropriated. Nor will it come out of Export-Import's regular funds. ECA will raise it, as needed, by selling notes to the Treasury.

Up to $300-million of the $1-billion raised in that manner can be used by ECA to guarantee the convertibility of private investments in Western European countries.

• **No Losses**—Suppose, as part of an approved project in the recovery program, General Motors builds a truck assembly plant in Great Britain. The U. S. guarantees G. M. against any loss from currency controls.

A similar guarantee applies if the plant is nationalized and the company is hung up with sterling. The guarantee runs for 14 years.

• **Few New Jobs**—When the foreign aid bill went on the books, State Dept. had upwards of 5,000 applications for jobs with ECA, the new agency-to-be. But all indications are that ECA will be shoehorned into, rather than straddled over, the existing governmental set-up. Thus, its employees are likely to number in the hundreds, not thousands.

Agriculture will handle almost all of whatever government buying is involved; State will continue to set foreign policy in the countries getting our help; Commerce will still be the sparkplug on export controls.

• **Big Job**—Nevertheless, Studebaker's ex-president will have plenty to do.

Once the Committee of European Economic Cooperation (CEEC) in Paris begins shooting approved recovery programs across his desk, it will be largely his decision whether to O. K. them or turn thumbs down.

Although the "U. S. special representative in Europe"—ECA's roving ambassador—is appointed by the President, it will be the ECA chief who tells him what he can and cannot do.

It is Hoffman plus Marshall who will work out the bilateral "self-help" agreements called for from each country. And it is Hoffman who must finally determine whether to shut off U. S. aid if the Soviet curtain drops down on a Marshall Plan country.

• **Headaches**—The administrator will have plenty of headaches, too. One of his biggest: East-West trade.

Western Europe traditionally sends Eastern Europe manufactured goods in return for food and raw materials. Such trade approximated $1.5-billion in 1947.

To attain the recovery goals roughed out by CEEC and U. S. technicians, this total must more than double over the next four years.

• **Disagreements**—As a practical matter, ECA will be working closely with Commerce on this kind of poser. But if they tangle over a particular case—if they can't agree to agree—the White House will umpire the case. So also, if ECA and the State Dept. don't hit it off.

There's a good prospect that, as personalities, Hoffman and Marshall won't clash. But each of their agencies will inevitably face situations where the intentions of one threaten to gum up the policy of the others.

From whatever source, you can bet on this: The fewer the deadlocks, the more successful the program.

Margarine Wins Round, But Fight's Not Over

After years of struggling, the margarine industry last week began to see some real hope of throwing off its federal tax shackles (BW—Feb.14'48,p25).

Pro-margarine forces in the House got the necessary 218 signatures on a petition to discharge a tax-repeal bill from committee. This means the bill will come to the floor for a vote Apr. 26. Just two weeks earlier it was the dairy-butter bloc that was happy: the House Agriculture Committee had voted to sidetrack the bill for this session.

But even with this road block out of the way, there may be some bumps ahead for margarine-tax repeal. Reason: International politics has come into the picture.

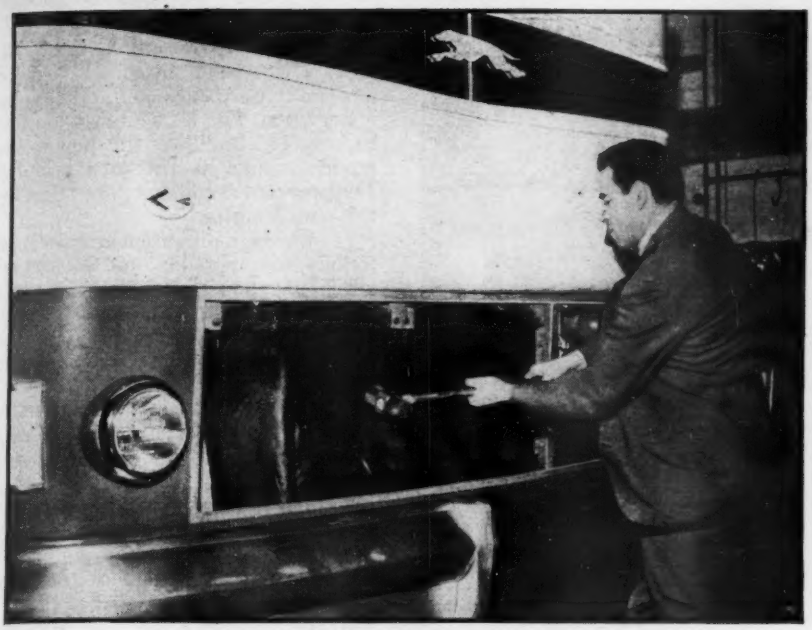
• **Provisions**—Rep. L. M. Rivers (D., S. C.) introduced the bill that will come before the House. It would wipe out all federal taxes and license fees on margarine.

But the soybean and cottonseed oil bloc, which has led this year's fight for tax-free margarine, is plugging hard for another bill. It's going to try to substitute, for the Rivers bill, a measure sponsored by Rep. Robert J. Corbett (R., Pa.). Corbett would: (1) cut the taxes and most license fees on colored margarine to the same level as uncolored; (2) more important, reduce them only on margarine produced from domestic oils.

• **Aim**—The No. 2 provision is designed to prevent Philippine coconut oil from replacing domestic soybean and cottonseed oils in margarine.

This provision of the Corbett bill will have to be opposed by the Administration—since such a discrimination against an imported product violates the spirit of the newly signed International Trade Organization charter.

• **Prospect**—Whatever the outcome of a tax repealer in the House, it's generally agreed that the Senate would go pro-margarine. But it's a question whether a Senate majority would go along with the discrimination against foreign oil.



Greyhound Bus Gets Crashproof Fuel Tank

Two plies of liquid nylon between two layers of special rubber make this new Greyhound bus gasoline tank virtually crashproof. Milo M. Dean, chief engineer for Greyhound, proves the point by taking a whack at it with a sledgehammer. Firestone Tire & Rubber Co. developed the tank, which has many of the insulating features of the self-sealing gasoline cells that were used in fighter aircraft during the war.

Retail Outlook Perks Up

Last-minute spurt shoved Easter sales, slow at the start, ahead of last year. And merchants now think that tax cuts, military buying, veterans bonuses will keep the pot boiling.

Jittery retailers drew a deep breath this week and relaxed, as they saw things aren't going to be so bad after all.

Easter sales got off to a dishearteningly slow start this year (BW—Mar. 27'48,p21). By mid-March, many a retailer was looking in dismay at his inventories, wondering just how much of a markdown he would have to take.

• **Flashy Finish**—But in the last crucial week, sales took a sudden spurt. Department store volume in the week ending Mar. 27 ran a good 17% over 1947. That was enough to put most stores ahead of last year on dollar volume for the Easter season as a whole. Unit sales, of course, were off some because prices are higher this year. Just how much is hard to say; but individual stores report that physical volume was anywhere from 1% to 12% off.

On the whole, stores aren't worried about inventories now. Some will stage their usual post-Easter clearances, but few will have to take drastic markdowns.

• **Encouraging Outlook**—What's more, most retailers now feel that the outlook for the rest of the year is brightening rapidly. Part of this is just a psychological rebound from the trade's crepe-hanging attitude of a few weeks ago. But aside from that, the stores can point to several new developments that should boost their prospects:

EUROPEAN AID (page 19) means heavy outlays during the coming year. This will bolster incomes and purchasing power generally.

THE NEW TAX CUT will put an additional $4.8-billion into the pockets of individuals during the next year. Much of this will go into personal consumption expenditures. It will help fill out the hole that high food costs have made in family budgets.

WAR TALK may touch off a certain amount of scare buying among consumers. There have been a few hints of this already, although there has been nothing approaching panic buying. Stores think that, in coming months, fear of war may provide a prop for hard goods demand. This could postpone the drop in appliance sales that many retailers have been forecasting.

NEW MILITARY ORDERS may clear the market in some lines and stiffen the price structure. The textile industry, for instance, is counting on government business to pull it out of its difficulties.

STATE VETERANS BONUSES will amount to roughly $1.5-billion in 1948.

But even though things are looking up a bit, retailers as a whole are still playing a cautious game. Some are tempted to stock up heavily and gamble on higher prices. But for the majority, Easter this year was much too close a shave. They plan to hold stocks down and take as few chances as possible.

Here is the way the picture looks in 10 key cities:

New York. Apparel sales were disappointing. A lag in sales was obvious, too, in the luxury lines—cosmetics and jewelry, for instance. Other business wasn't bad.

Baltimore. For the four weeks ended Mar. 27, department store sales were 5% over the same period of 1947. Sales of high priced women's ready-to-wear were not so good as expected. Stores expect to run ahead of 1947 volume at least through the summer.

Pittsburgh. A bangup final week made Easter, as a whole, better than expected. Dollar volume for the season was up 10%, unit sales down about 1%.

Cleveland. Easter sales ran about 5% ahead of 1947. Stores think their inventory position is safe, although some admit that stoves and refrigerators are beginning to drag.

Detroit. Three days of good weather before Easter made up for a bad showing before then. Many stores are staging fair-sized clearance sales, but the markdowns are not enough to hurt.

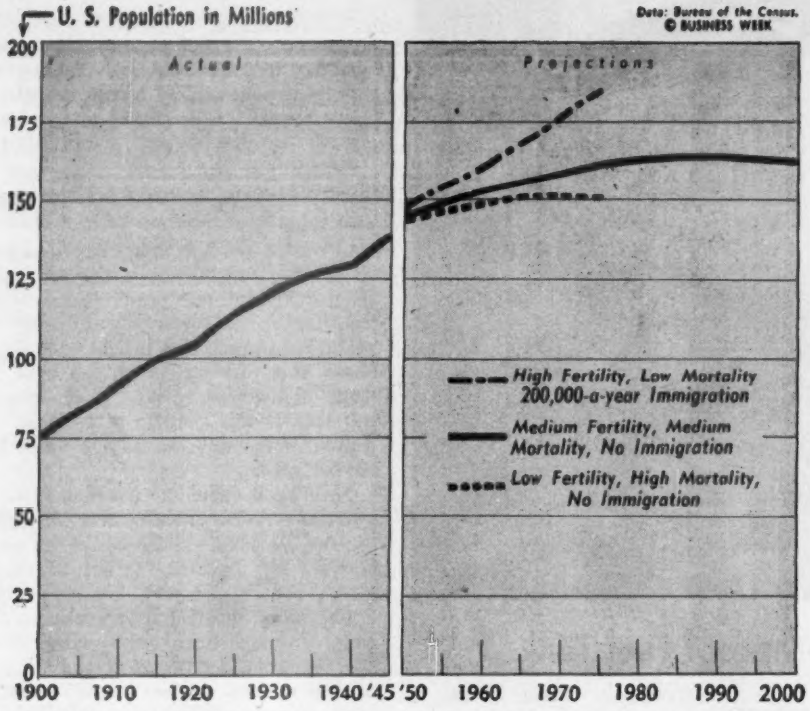
Dallas. Department store sales were 8% to 10% above 1947. Some stores took a beating on unknown radio brands. Ready-to-wear inventories are heavy and probably will be marked down slowly.

St. Louis. Sales in the four weeks preceding Easter were up about 10% above 1947. Stores are sticking by a cautious inventory policy, although they expect sales to rise.

Minneapolis. A last minute break in the long stretch of sub-zero weather brought a buying rush; it put the total for the season 5% or so above 1947. Higher-priced items are harder to move.

Chicago. Stores say that no lines were really bad this year, but they weren't entirely happy over sales of women's suits and coats. Heavy appliances also are beginning to move slowly.

San Francisco. Results were spotty, but most stores are fairly well satisfied. On the whole, sales were about equal to 1947.



DIFFERENT ASSUMPTIONS give different forecasts of where population goes from here

U. S. Population Is Still Rising

But how much? And how long? Those questions are vital to long-range planning. Census Bureau study gives several forecasts, based on varying estimates of births, deaths, and immigration.

In planning for the long pull, many a businessman wants to know: What will happen to U. S. population? Consequently, there has been tremendous interest in a new, official government forecast of population trends for the next 30 years. The forecast: Population in 1975 will be between 151-million and 185-million, compared with a present 143-million.

The estimates are contained in a book published by the Bureau of the Census. It's called "Forecasts of the Population of the United States, 1945-1975." The first printing, issued in mid-March, sold out in advance. The second printing was exhausted last week. Orders are already piling up for the third printing, scheduled for next week. The book costs 45¢, can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

• **Lots of Ifs**—As in all forecasting, there are some big ifs. Population experts must contend with three major variables: birth rates, death rates, and immigration. The Census Bureau's forecasters studied the effects of low, medium, and high fertility; low, medium, and high mortality; and average annual net immigration of zero, 100,000, 200,000, and 300,000. Theoretically, that would give 36 different possible forecasts. Actually, the bureau holds down to far fewer—feeling that they adequately picture the possible alternatives.

• **Principal Factor**—Fertility—the baby-making rate—is the main factor. The projection for 1975 at high fertility is 14-million above that for medium fertility; the latter is 11-million greater than a projection based on low fertility.

For every 100,000 immigrants per year, the 1975 estimate will be 4-million larger. So the maximum spread between estimates based on zero and on 300,000-a-year net immigration is 12-million. The bureau points out, however, that immigration of 300,000 a year would require an increase in existing quotas. It considers this unlikely; in effect, it accepts 200,000 a year as the theoretical maximum.

• **Three Estimates**—Thus, although statisticians could formulate 36 different forecasts by juggling the factors, three are of real importance (chart, above):

(1) The lowest assumes low fertility, high mortality, zero net immigration. On this basis, Census estimates a 1975 population of 151.1-million. Furthermore, by 1975 the total population would be declining, since it had reached its peak of 151.6-million in 1970.

(2) The second projection assumes medium fertility, medium mortality, no immigration. The 1975 estimate on this basis is 162.3-million; the population would continue to rise to a peak, in 1990, of 164.6-million. After that it, too, would decline.

(3) The high projection assumes high fertility, low mortality, and an average net immigration of 200,000 a year. On this basis, population would reach 185.1-million in 1975 and, says the bureau, "would continue to increase indefinitely."

It should be noted that death rates and other effects of a possible World War III are not considered in making the estimates.

• **Getting Older**—From the point of view of business planning, trends in the age-composition of the population are perhaps as important as the overall movement of population itself. On this point, there is no wide variation of possibilities. The population is definitely going to be older, on the average, in 1975—no matter what assumptions are made.

It comes down to this: Today we have more babies than grandparents; 13-million vs. 10-million in 1945. In 1975 it will be just the other way around. On the basis of the low population estimate, we'll have only 8.6-million babies (under 5) and 17-million grandparents (65 and over). On the basis of the high population estimates (chart, page 23), we'll have 14.6-million babies and 20-million grandparents.

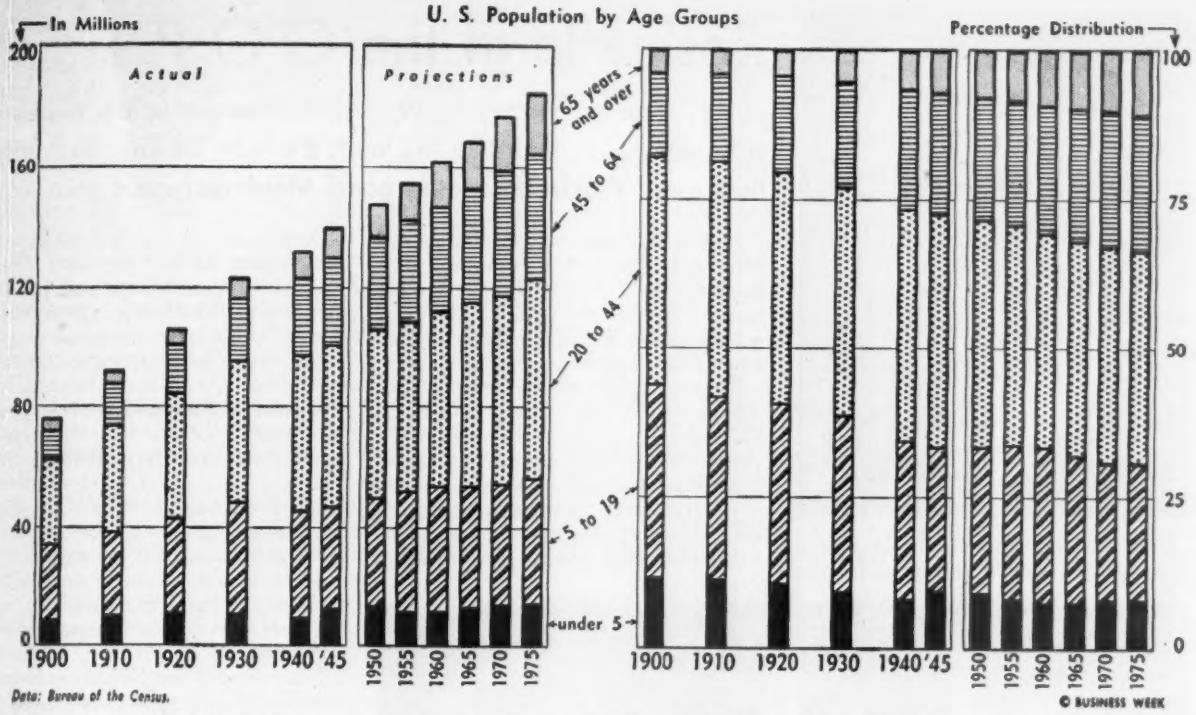
Furthermore, although the total population of working age (20-64) will change very little, we will have fewer people in the best working ages (20-44), more in the less-efficient group (45-64).

• **Birth-Rate Effects**—As an illustration of the importance of this age-distribution factor, take a look at the actual birth-rate pattern of the past 15 years—and at its later effects on schools, marriages, and working-age population:

The birth rate was low during the depression; it rose only slightly up to the beginning of the war. But since 1942 it has been much higher; in 1946 it was some 50% above 1933.

• **On Elementary Schools**—This has had a profound effect on our educational system. The number of children ready to go into first grade (between 5½ and 6½ years old) on Sept. 1, 1939, was only about 2.1-million. That was the smallest figure in years—because the number of births in 1933 was the smallest since about 1905. By Sept. 1, 1946, the number of prospective first graders had increased to about 2.4-million (nearly 15% above 1939), because of the rise in the number of births from 1933 to 1940.

This upward trend will continue



GETTING OLDER: There will be more grandparents than grandchildren in 1975, according to Census Bureau population estimates

(with slight setbacks in 1950 and 1951 because of slightly lower birth rates in 1944 and 1945). In 1952 the first-grade group will reach the record-breaking number of 3.3-million. That's an increase of more than 50% since 1939; of 36% since 1946.

• **On High Schools**—The same figures will apply to high school grades an appropriate number of years later. (The number of children skipped or left back is too small to be significant.)

The number of children of junior high school age in 1946 was less than 2.2-million. In 1958 it will be almost 3.3-million—more than 50% higher. That factor alone would require a big increase in high-school facilities in the next 10 years. But there's another factor that makes the situation more serious: There has been a marked upward trend recently in the proportion of youngsters attending high school.

• **On Colleges**—College attendance depends even more than high-school on the proportion of youths in the proper age brackets who go to college.

Nevertheless, in planning for the future, college authorities cannot ignore the changes in the number of youths of college-entrance age. The number is now declining, will drop to a low of 2.1-million in September, 1951. From then on (barring another war) it will rise fairly steadily to a peak in 1964 of 3,259,000—an increase of 57%.

• **On the Labor Force**—A recent study cited by the bureau shows that 18 was the average age of men entering the labor force during the late 1930's; about 70% did so between 16 and 20. Because of past changes in the number of births, the number in this group began to decline in 1940; it will reach a low point about 1951. From 1951 to 1958 there should be a gradual increase; from then until 1964, a sharp increase.

This factor is of great importance to business. These young men and women are the beginners; in general they start at low-paid jobs, from which they are promoted as they are trained and gain experience. Some industries depend much more than others on such beginners. These will have to plan for substitutes during 1951 to 1954, when the supply is short; later on, when the number is rising, they can raise their standards for selection. On-the-job training and apprentice programs will be affected similarly.

• **On New Families**—The number of marriages will also vary in future years because of past changes in birth rates. Men normally marry for the first time between 20 and 25; women between 18 and 23. One reason for the record-breaking number of marriages in 1940-1946 was the fact that there were more men and women in these age brackets than at any time previously.

The size of these groups is declining now, and will continue to decline until 1956. So the number of first marriages will tend to drop to a similar degree. From 1956 to about 1966, the number of first marriages will tend to rise. These trends will affect the demand for rings, wedding presents, household furniture, and other items related to the setting up of newlywed establishments. In particular, they will affect the demand for housing.

• **Long-Range Conclusion**—All of these conclusions have been reached on the basis of what we already know as fact—the number of births up to 1946. A far wider range of conclusions can be drawn from the bureau's forecasts.

Take the aging of the population, for instance. The bureau finds that the number of people over 65 will increase between 7-million and 10-million by 1975 (depending on the assumptions used). That means an increased need for old-peoples' homes and hospitals. And it means an increasingly heavy load on the social-security system.

From 1900 to 1945, the country benefited by this aging process, because there were more and more people in the working-age brackets (20 to 64). But from now on, aging will have the effect of increasing the proportion in the 45-64 group, decreasing that in the 20-44 group. That will probably mean a decline in the working efficiency.

• **Slower Growth**—What will be the effect on the economy if the rate of population growth starts to slip? It isn't certain that a slowup in population growth means lower economic activity, but that's the conclusion generally drawn.

Furthermore, the size of the total population does affect things like size of cities and demand for housing. So a slowup in growth will bring important shifts in types of markets. Less money spent on housing, for instance, will leave more of the national income to be spent on food—and on luxuries.

Reshuffle in the G. O. P.

Stassen victory in Wisconsin upsets election dopesters. If he repeats in Nebraska, he leads the race. Dewey, Taft muster their guns. Vandenberg looks good, MacArthur out.

WISCONSIN WINNER Harold Stassen: His next test will be the Nebraska polls

Out in the Midwest, the Republican voters are taking politics into their own hands. They're confounding party "big wheels" and elections experts alike.

• **Reshuffle**—The insiders thought they knew what was going to happen in Wisconsin on Apr. 6—Gen. Douglas MacArthur would win. After Harold E. Stassen's victory upset the predictions, they spent this week uneasily reshuffling the cards in Nebraska—which next Tuesday rounds off its presidential popularity contest among seven Republicans.

In Nebraska, until the Wisconsin polls Stassen was counted third—behind Sen. Robert A. Taft and Gov. Thomas E. Dewey. One private poll even put him behind MacArthur. Now, on the eve of the primary, dopesters aren't so cocky; they don't know what the voters are up to.

• **Wisconsin Results**—However, you can take the Wisconsin outcome and nail down these three facts about Stassen's victory:

(1) It cracked the shell of the Dewey psychology that "Tom's the champ; he's the one who can poll the votes."

(2) It wiped out one of the last hopes of midwestern isolationism.

(3) It stopped the MacArthur boom a-borning.

And no one in Nebraska discounts the Wisconsin election. A Dewey campaign leader said: "It dampens enthusiasts materially." A Taft man said: "It's proof that Stassen's coming fast, which we could see when he was here in March." A Stassen leader said: "We'd give it even more significance if it had happened in Iowa or Kansas. They are much closer kin to Nebraska." An excited plan to begin a doorbell-ringing campaign for MacArthur sputtered and cooled.

• **Key Poll?**—The election has a bandwagon potentiality. A second victory for Stassen would make him the man to beat. If Taft wins, it would solidify his conservative backing and prove him a vote getter. For Dewey, victory would salve the wounds of Wisconsin.

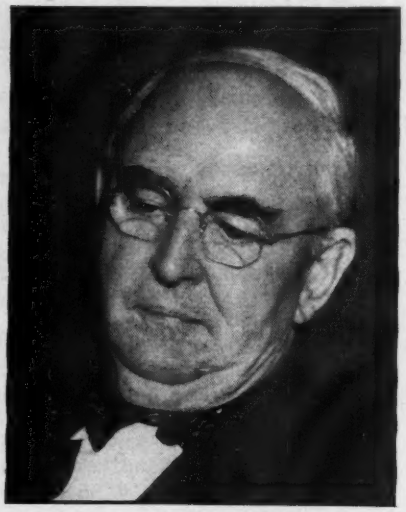
Though you don't get a breakdown along any geographic or economic lines as to what support each candidate has, these basic factors are evident:

(1) Taft rides or falls on the personal organization of U. S. Sen. Hugh Butler, wealthy grain man and standpat non-interventionist. A hard core of that support comes from the 220,000 voters of German extraction, largest national block among Nebraska's 1.3-million population.

Butler is trying to keep in line the Republicans who renominated him in 1946 over Stassen's candidate, ex-Gov. Dwight P. Griswold. Taft's supporters think they have the situation in hand. Other partisans and bystanders doubt it. They say that Butler got a lot of support in 1946 that he can't deliver to Taft now. For instance, Fred Seaton supported Butler over Griswold; now Seaton is Stassen's campaign manager.

(2) Dewey is counting heavily on the backing he has had since the 1940

CAMPAIGNING for Nebraska, Sen. Robert Taft pins hopes on Sen. Butler's bloc



NOT CAMPAIGNING—but a potential placer in race: Sen. Arthur Vandenberg

STUMPING the Midwest, Gov. Thomas Dewey cites "invincibility," good record

OUT OF RACE? Gen. Douglas MacArthur's hopes dim after Wisconsin defeat

primary. He carried Nebraska then; in 1944 he got 18,000 write-in votes though he asked for no support. Dewey's campaigners in Nebraska have two bills of goods—"invincibility," and the efficiency of the New York State administration. But Dewey probably hasn't gained many friends. One G.O.P. convention delegate said: "He's hanging on."

(3) Stassen has built a good organization; he has captured a personal following through his back-breaking campaigns. In his three trips into the state, he directed his appeal to the veterans, the internationalists, and the reclamation and irrigation farmers of the West. His speech on Missouri River development got the best reception of the whole campaign.

(4) MacArthur has only modest support, principally among World War I veterans and among old isolationists.

(5) There is a latent sentiment for Sen. Arthur H. Vandenberg. An enthusiast said that if Vandenberg had permitted a campaign he would have won. You could find Dewey and Stassen men admitting that Vandenberg would place second anyway.

Two other candidates who aren't trying are Speaker Joseph W. Martin, Jr. and Gov. Earl Warren of California but Vandenberg should finish ahead of them. Chances are that he might do better than MacArthur, and he might even crowd into third-place.

• **Issues**—If you wanted to rate the issues in the Nebraska campaign, it would be: (1) personalities; (2) farm policies; and (3) foreign policies.

There is a curious split on the latter point. While the Nebraska delegation voted solidly against the European Recovery Program in Congress, the Young Republicans in Lincoln were voting 60-40 for ERP, and a business group in Omaha was following suit. In the rural districts, as well as the cities, the candidates have drawn applause for backing aid to anti-Communist countries, and the new selective service proposal was calmly received.

There is another issue, though minor: Mrs. Robert A. Taft. Sentiment is mixed over her stumping the state. Some like her wit; some like her grit. But a few others have coined a nickname for her: "Eleanor."

GAS POWER FOR ALUMINUM

A potential check on U. S. primary aluminum capacity is electric power. There's no acute shortage of the light metal today. But a step-up of plane procurement could create such a shortage practically overnight. And the present squeeze on power could hamper the industry in its efforts to meet demand.

With this in mind, Aluminum Co. of America is studying the pros and cons of establishing an aluminum-reduction plant powered by natural gas. While making up its mind, Alcoa has taken an option on a 3,000-acre plot at Port Lavaca, Tex.—about 100 mi. southwest of Houston, and close by the Refugio field, one of the largest natural-gas sources in the nation.

Power from natural gas is not new in the aluminum industry. The Jones Mills (Ark.) works already uses it. This plant was operated by Alcoa during the war; it has since been leased in part to Reynolds Metals Co.

Even if Alcoa decides to go ahead at Port Lavaca, there will be no net increase in its over-all basic capacity. Reason: The company plans to close down its Niagara Falls reduction plant in about a year (BW—Apr.26'47,p16).

Lewis To Court

Once more he will face Judge Goldsborough in contempt action for letting strike go on despite government order.

John L. Lewis this week was scheduled for another date with U. S. District Court Judge T. Alan Goldsborough—the man who slapped a whopping fine on his United Mine Workers in 1946. Once more he will face Judge Goldsborough in a contempt action.

• **Repeat Performance**—As before, the issue involves a contract clause; this time one that says miners need work only if "able and willing" to do so. And again, Judge Goldsborough must decide if a "Lewis-induced" strike actually exists, or whether the nation's 400,000 soft coal miners individually made up their minds to quit.

Judge Goldsborough, a tough and able jurist, decided against Lewis in 1946. Although the $3,510,000 fine he assessed was cut in the U. S. Supreme Court to $710,000, his decision was upheld (BW—Mar.15'47,p15).

• **Pending Actions**—Two court actions are now pending:

A Lewis plea for dismissal of a federal court order which requires the union to send miners back to work. The union argues that the injunction is unconstitutional. Miners, it contends, left their jobs because they weren't "able and willing" to work any longer under old contracts (BW—Apr.3'48,p104). Any order requiring them to work against their will would violate the miners' "freedom from involuntary servitude," U.M.W. attorneys said.

The Justice Dept. contempt action against Lewis and the U.M.W. for letting the strike go on despite the court order to end it "forthwith."

Hearings on both the union plea and the contempt action are set for Apr. 12 to speed court procedure.

Regardless of his decision, the fight won't stop in Judge Goldsborough's court. Appeals are certain.

The big question, meanwhile, is: Will the miners, mindful of the big fine last time, sit out the appeal, or dribble back to work?

• **Industry Cutbacks**—Amid uncertainty, industry this week prepared for some heavy cuts in operations. Hopes for a quick break in the strike dimmed. A sharp slump in industrial indices must be expected now (page 9).

And as industrial fires are banked, there's a grim realization that steel and other heavy industries don't start up easily after a shutdown.

• **Break in Patience**—Hence the patience of the public and of Congress is moving nearer an exhaustion point. Even labor—feeling effects of layoffs and a slowdown in contract talks (page 102)—isn't solidly behind Lewis any longer.

Result: There's a sharp upswing in sentiment for legislation to break industrywide bargaining and strikes. A second major strike now under way—in meat packing (BW—Mar.27'48,p109)—reinforces the opinion.

• **A Tightened T-H Law?**—Two bills to amend the Taft-Hartley law have now been introduced in Congress. Both are aimed at Lewis. One would outlaw "monopolistic strikes" and bring unions under antitrust laws. The other would restore the Smith-Connally wartime seizure powers which expired last June 30.

BLOW TO AIR-FREIGHT LINES

The uncertificated air-cargo lines last week lost two more decisions in their efforts (BW—Apr.3'48,p80) to maintain and expand operations:

(1) The Civil Aeronautics Board refused to allow air-freight forwarders temporary immunity from certain sections of the Civil Aeronautics Act.

(2) The Railway Express Agency was refused special exemption authorizing it to operate as an indirect freight carrier under agreements with uncertificated air-freight lines. So Railway Express must continue to confine its services to express (air or rail).

The CAB ruling assumes air-freight forwarders to be common carriers; actually they function as expediters. They round up small shipments into full loads—thus obtaining extra business for the air carriers. Several all-freight lines fear they will be unable to continue operations if denied the traffic-generating services of the forwarders.

The exemption, sought by 79 forwarders, was to have been temporary, awaiting outcome of a freight-forwarder investigation which has been pending for a year and a half.

LOBBY ROSTER of Corporation Trust Co. gets name of a new Delaware corporation

GIRL CLERKS check proxies for some of 9,000 companies Corporation Trust represents

Ready for Meeting Time

Companies in Delaware that act as agents for corporations chartered in state roll up their sleeves and get set: The spring rush of stockholders' meetings is near.

Tiny Delaware has one of the largest per-capita concentrations of corporations of any state in the union. More than 23,000 of them—big and little—are chartered and maintain "home offices" there.

More often than not, these companies' main seats of business are somewhere else. So they must have agents in Delaware to represent them legally. This need has created a business—and almost a tourist attraction. In Wilmington and Dover, visitors are always amazed at the size of the wall directories in some of the downtown office buildings. These are the directories of companies that specialize in legal representation work; the names are those of the companies they represent.

• **9,000 on One**—One of the largest directories is on the walls of the lobby at 100 West Tenth St., Wilmington—home of Corporation Trust Co. Some 9,000 names are listed on it. Corporation Trust is one of 33 companies in Delaware (23 in Wilmington alone) that specialize in such work.

This week Corporation Trust offices were getting set for one of their big spring jobs: handling annual stockholders' meetings. Soon directors and top executives from corporations all over the U. S. will stream into the state.

• **Liberal Laws**—Businesses have long taken advantage of Delaware's liberal corporation laws to be chartered in that state. There is no corporate income tax, no personal property tax, no stock transfer tax. Corporation directors do not have to be stockholders or residents of Delaware. Its corporation law requires no detailed or cumbersome financial reports. In fact, corporations with Delaware charters don't even have to hold their meetings in Delaware if their by-laws stipulate another place (although many do meet there anyway).

Also important: These laws have been confirmed by court decisions; so corporation lawyers have come to feel that provisions of the Delaware corporation code are pretty well established.

• **Franchise Tax**—One reason that the state's law makers are so open-minded on the corporation laws is the state's annual franchise tax. This is a very mild tax, assessed on the number of stock shares outstanding. But it is one of the state's biggest sources of revenue. For the year ending June 30, 1947, it brought in $3,349,243.

Among the big-name companies organized under Delaware laws are: Allis-Chalmers, American Viscose, Colgate-Palmolive-Peet, Curtiss-Wright, E. I. du Pont de Nemours, Ford Motor, General Mills, General Motors, Gillette Safety Razor, Goodyear Tire & Rubber, Hershey Chocolate, Radio Corp. of America, Remington-Rand, Schenley Distillers, Standard Oil of California, Warner Brothers Pictures, William Wrigley, Jr.

• **How It's Done**—Companies like Corporation Trust have made their names by looking after the Delaware affairs for these—and the smaller corporations—that have flocked to the state. Most of them handle the legal details of incorporation from start to end.

Here's how Corporation Trust does it: An out-of-state company approaches it with the idea of chartering in Delaware. This company first has its attorney draw up a certificate of incorporation. The attorney turns this over to Corporation Trust, or takes it to Delaware himself. Corporation Trust then

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arranges to have the certificate filed at the office of the Secretary of the State. (Corporation Trust keeps an office open in Dover, the state capital, just for this purpose—and to keep track of what's going on there.) After the company is registered, and the incorporators' meeting held, Corporation Trust puts up the Company's nameplate in the Corporation Trust lobby. It is then the company's legal representative in Delaware. It keeps a duplicate stock ledger on file, and keeps the company's attorney posted on all actions he must take to keep his company in good standing. After that it's up to the new company. Corporation Trust has nothing to do with whether it makes a profit or not.

Cheaper Tires

Industry turns to lower-grade, lower-priced casings to offset inventories, meet chain competition.

Last month's tire prophecies have become this week's fact. As expected (BW—Mar.27'48,p23), all the major tire companies are now out with second- and even third-line casings.

• **Slump**—Trade circles see the move as a means of protecting prices of the conventional 100-level tires. Inventories are bigger now than at any time since the war—without sales to match. Some executives think this year's first-quarter slump is the worst to hit the tire business since 1938. Three of the smaller factories have closed down to let sales catch up with stocks.

With the pipelines filled up, the tire companies are bumping into more competition from chains and mail-order houses—which already are selling lower-priced lines.

• **Remedy**—So here's what the Big Four, and several others, are doing (prices are for 6.00 x 16 sizes):

Goodyear Tire & Rubber broke the ice with two new lines—the Corsair, priced at $13.95, and the Marathon, selling at $12.40. The company's top-level tire sells for $15.25.

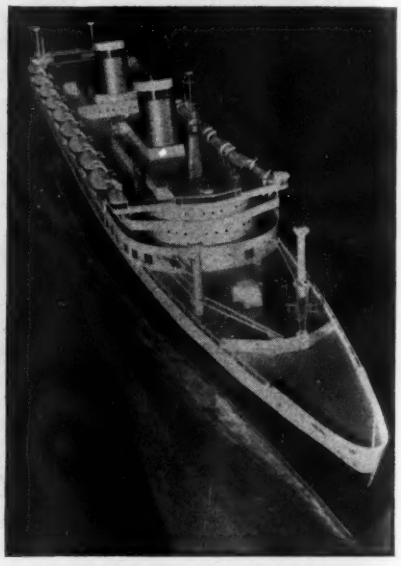
B. F. Goodrich followed suit 24 hours later. It announced its Defiance tire, selling for $10.95. Goodrich bluntly told its dealers that the tire was no match for first-line casings, but low-priced. But it believes that there are thousands of car owners who will make a good market for this line: the owners who want something only to carry them through until they can get new cars.

Firestone Tire & Rubber came out with the Firestone Super-Champion at $13.95, and the Standard at $12.40.

U. S. Rubber has one new line—the U. S.—selling at $12.40. Then U. S. rubber went to the opposite extreme of the quality scale and brought out a new extra-quality, low-pressure tire designed to give up to 60% more mileage than ordinary tires. It costs twice as much ($31) as first-line tires.

Other companies announcing second-line casings: Mansfield Tire & Rubber Co., with the Mansfield Standard selling at $12.40; and the Pennsylvania Rubber Co. with the Keystone.

• **Less Profit**—The new lines may give a spurt to sales. But they will take a bite out of manufacturers' profits because prices have been cut further than costs. Dealers will feel the effects, too. The usual key dealer discount of 25% off list has been trimmed to 22½% on second-line tires, to 20% on third-liners.



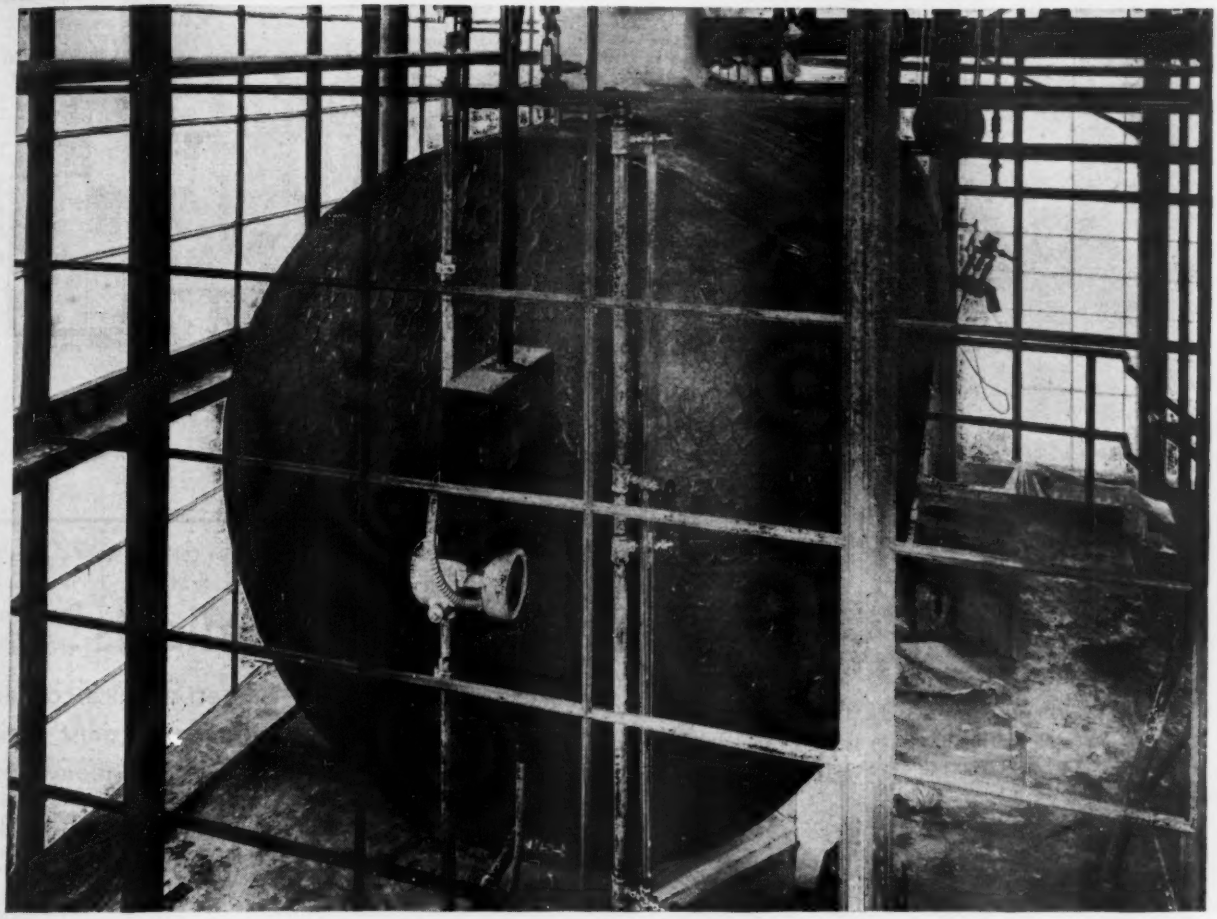
RIVAL for the Queens?

MODEL SUPERLINER

The U. S. got in its bid for superlatives on the high seas this week. United States Lines unveiled plans for the biggest and fastest passenger liner ever built in America. The ship, which has been on drawing boards for three years, would cost an estimated $65-million.

As she now sits in the model stage, the ship would not measure up to Britain's Queens in size, but she would give them a close nudge in speed. Her designed length is some 900 ft., her gross tonnage 48,000 (larger than the America's 26,000 tons, smaller than the Queen Elizabeth's 83,673 tons and 1,031-ft. length). She would cruise at 28½ knots—which would enable her to make biweekly runs to Europe. As a passenger liner she could carry 2,000; as a troopship 12,000.

Keel-laying awaits a congressional subsidy, which must first be O.K.'d by the Maritime Commission.



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Get all the facts about Fiberglas blankets—their many forms and uses. Write for "Fiberglas Insulations for Industry" . . . Owens-Corning Fiberglas Corporation, Dept. 803, Toledo 1, Ohio. Branches in principal cities.

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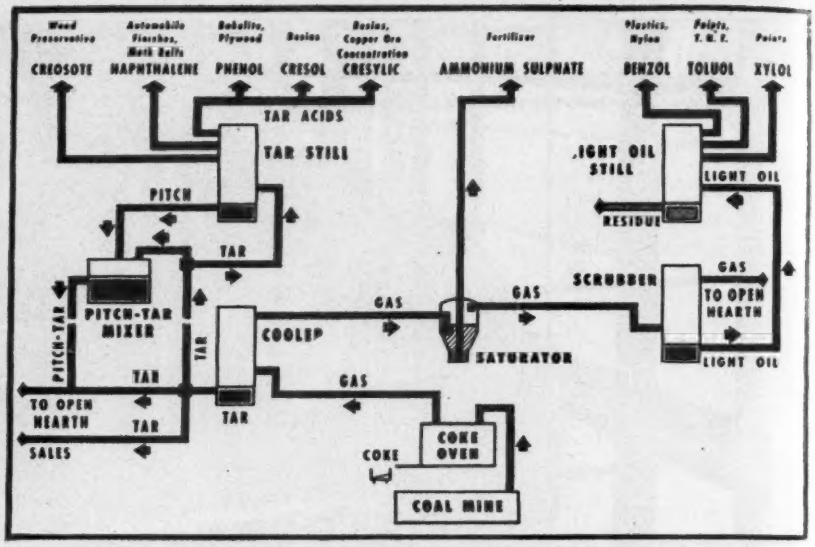

BYPRODUCT CHEMICALS rise in variety from coal and coke

U. S. Steel: Into Chemicals?

Biggest steel company is among 10 biggest chemical concerns as result of byproducts of its coking operations. It must decide whether to process raw chemicals or continue to sell them crude.

United States Steel Corp., owner of a third of the U. S. ingot capacity, is the nation's biggest steel company. And because of that fact, it is also among the country's 10 largest chemical concerns, in point of dollar volume.

• **Too Successful?**—Last week U. S. Steel was wondering if this success story is so successful. For it has put the company face-to-face with a major decision: Should U. S. Steel stick to its last? Or should it become more of a multipurpose corporation by branching out into the processing of the raw coal chemicals it produces in its coke plants as steelmaking byproducts.

Ever since 1908, U. S. Steel has sold these coal chemical byproducts in crude form. It has been a profitable sideline to the manufacture of steel; each ton of coal it uses yields 151 lb. of chemicals. But the profit from them would be even greater if the company refined the chemicals before selling them.

• **Two Problems**—There are, however, two main problems that make U. S. Steel's decision a tough one:

(1) If it goes into chemical refining, it will mean a big plant-construction program—which takes financing. The question: Is it wise when the company is carrying out one of the biggest steelmaking expansions in its history?

(2) Once they are built, the chemical processing units must operate at a high rate to be economical. But if steel ingot operations drop to half capacity, so will the refining of chemicals.

On the other hand, there are many reasons that might make the results worth the investment. The chief one is that some of the coal chemicals are certain to have a huge market for many years to come.

• **Big Business**—U. S. Steel's chemical business today is tremendous for a company in a completely different line. It is about equal to that of companies like Diamond Alkali, Pennsylvania Salt Mfg., Atlas Powder, and about one-third that of Dow Chemical Co. More impressive are the percentages of the amount of each coal chemical that U. S. Steel produces in this country:

- 30% of all ammonium sulphate;
- 30% of all the benzol;
- 30% of all the tar;
- 10% of all the tuluol and xylol (combined).

All these (plus naphthalene, creosote oil, and tar acids) are trapped in the byproduct coke ovens (chart, above). U. S. Steel owns 29% of all U. S. coke ovens, or 4,289. Its biggest byproduct coke plant is at the Clairton (Pa.) works of Carnegie-Illinois Steel Corp.

Clairton has the world's largest tar-distilling plant. Even so, it can't distill all the tar produced at the coke works. Nearby mills of U. S. Steel consume some of the tar as a substitute for short fuel oil. The rest is sold to an avid market.

• **How It Works**—Here is how the chemicals are taken out of the coal:

The gases collected in the ovens are

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ONLY 10 short years ago, the first fluorescent lamps were placed on public sale by General Electric. Since then G-E fluorescent lamps have revolutionized lighting in stores, offices, factories, homes—you see them everywhere!

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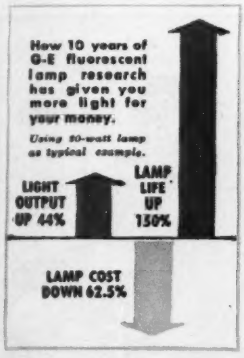
How 10 years of G-E fluorescent lamp research has given you more light for your money.
Using 40-watt lamp as typical example.
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LAMP LIFE UP 150%
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This amazingly rapid improvement in fluorescent is typical of the persistent effort of G-E Lamp research to give you *more light for your money*. It is only one of the many reasons why it pays to insist on "G-E" when you buy lamps for any purpose. General Electric lamps are constantly improved by research to *Stay Brighter Longer!*

G-E LAMPS

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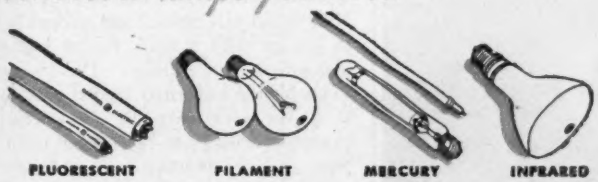
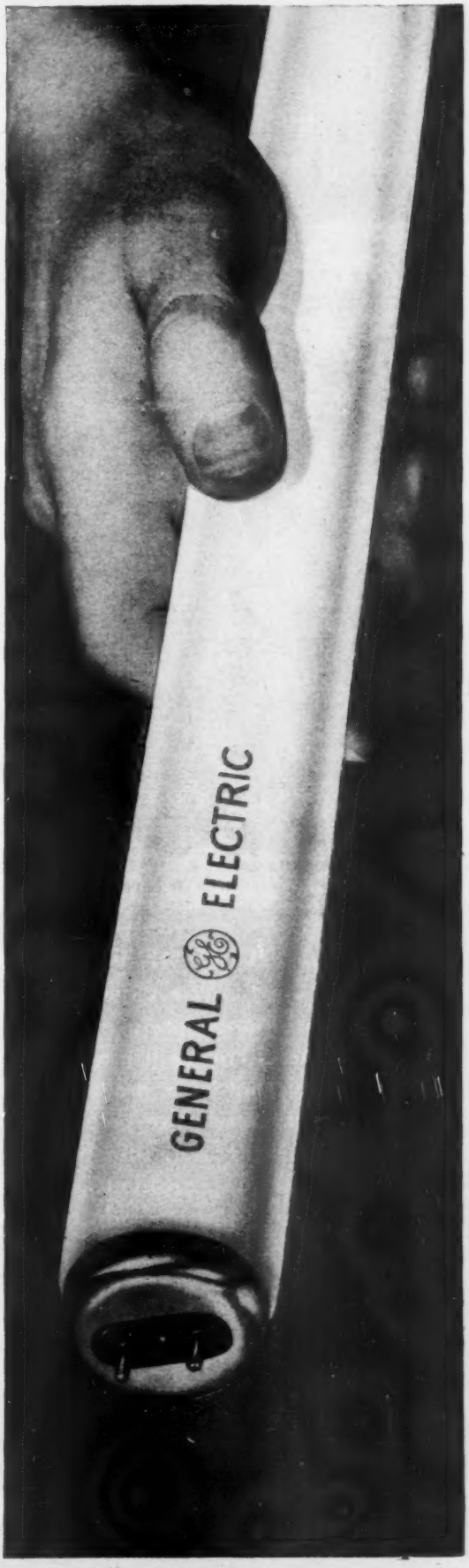


—G-E makes 'em all



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moved to a "cooler" where the tar is precipitated. The gas goes on to a saturator, which takes out the ammonium sulphate. Next, at a "scrubber," a light oil is taken out of the gas. What is left of the gas goes back to heat the coke ovens and help fire the open hearth furnaces at the steel mills.

Meanwhile, the tar that hasn't been sold or burned moves to a still. Distilled from it are such chemicals as creosote, naphthalene and other products down to simple moth balls. Tar acids drawn off include phenol, used in the bakelite and plywood industries; cresol, used in producing resins; and cresylic, also used in the resin industry and to help in concentrating nonferrous metals. These tar products seem to the chemical industry to be the most promising.

Three main products come from the light oil: benzol—used in fuel, plastics, and nylon; toluol—used in paints and TNT; and xylol—used in paint.

While Clairton chemical production has not been disclosed, it is generally accepted that the plant carbonizes about 30,000 tons of coal a day. The chemicals

COTTON AT HOME, ABROAD

To plug American cotton products to top-level designers in France and England, there's nothing like a pretty girl. So figured U. S. cotton interests, who dubbed Matilda Nail "Maid of Cotton," and packed her off to Europe with a trunk full of high-style, high-priced cotton dresses. The 19-year-old Texas blonde had barely landed back in the U. S. last week when she was whisked off to another selling job—this time at home. At New York's Waldorf-Astoria hotel she modeled $2.95-to-$17.95 dresses for the National Assn. of House Dress Manufacturers. The cotton people had decided it was time to start plugging cotton for low-cost dresses in the U. S.

are produced in relatively high states of purity and at reasonable costs.

• **Competitor**—Much the same combinations of hydrocarbons have in recent years been developed in petroleum. Thus the coal side of the industry has a competitor. But so far, at least, coal has the jump on oil. Reason: In processing petroleum, the basic raw material is destroyed, while the coal chemicals will remain byproducts as long as there are uses for the coke and gas.

For example, the coal men feel that the residue gas can be sold to public utilities. And burning nonmetallurgical coal in the byproduct ovens may solve the problem of disposing of coke during periods of low steel output.

Considerable research is being done on the latter possibility. There is a lot of nonmetallurgical coal. It may furnish more byproduct chemicals than does metallurgical coal. It produces less good coke for steelmaking, but it yields more gas.

• **Radical Change**—All these factors make U. S. Steel's decision one of major importance. A decision to go more deeply into chemicals, could change the company's whole concept of its business more radically than by anything that it has done since it was founded in 1901.

"MIDDLE SOUTH" PUBLICITY

Public utilities are lively promoters of industrial development in their areas. For they sell not only to the new businesses, but also to the new industries' workers and to the merchants who serve the workers.

With this in mind, top men of the four southern power companies operated by Electric Power & Light Corp. got together last week to promote their three-state region—Arkansas, Louisiana, and Mississippi—as a single industrial package. The companies are: Arkansas Power & Light Co., Louisiana Power & Light Co., Mississippi Power & Light Co., and New Orleans Public Service Inc.

At Greenville, Miss., the utility presidents met with governors, state agriculture, education, and health officials, and the executives of railroads, airlines, truck companies, and barge lines. The plan is to extend the successful program backed by Arkansas Power & Light (BW—Apr. 3'48,p30).

As in Arkansas, governmental and private organizations will work to improve health, education, and recreational facilities, and attract outside industry. The utility officials have announced that they jointly will spend $100-million by the end of the year to increase their capacity to serve industry. Also, they will spend $115,000 in the first six months of the program to advertise the "Middle South."

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Cotton Fiber Paper means Prestige

It's surely right that King Cotton have a degree as Doctor of Prestige. For if you want your letters and documents to be distinguished, to immediately indicate that yours is a firm or organization of high character, put them on Parsons paper made with cotton fiber.

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BETTER FIVE WAYS

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PAPERS
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Saves 750 lbs. dunnage per car

Water heater company cuts freight costs, reduces damage claims, saves time and labor with Acme Steelstrap

Acme Unit-Load Band practically eliminated freight damage claims, reduced labor costs and saved 750 lbs. of lumber dunnage per carload.

A shipping room production line is building more efficient packages with Acme Steelstrap. This saves 25% on each water heater package.

The extra expense of material and labor for bracing a car with heavy, costly lumber is a cost of distribution which can be reduced. Also that hidden cost, "claims for damages," can be eliminated.

This manufacturer of Portland, Oregon, asked Acme shipping specialists if Acme Unit-Load Band might be an answer to their water heater shipping problems. It was. This method saves 750 lbs. of lumber dunnage per carload and has proved to be a safer method of bracing cars.

While there the Acme experts also suggested an improved design for individual heater packages. This resulted in another 25% savings.

You are welcome to call in an Acme shipping specialist to consult with your organization on any shipping problem without obligation.

Write or send for booklet containing actual case histories of substantial savings made by Acme shipping specialists.

More savings ahead for Acme Steelstrap users—No. 3 Steelstrapper, the lightest tool made, is now available. Magazine holds 100 seals. Tensions, seals, and cuts the strap in one operation. Small base requires only 5-inch strapping surface. Two levers working in opposite directions make for better balance and easier handling.

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Gentlemen: Please send me a copy of your case history booklet, "SAVINGS IN SHIPPING."

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Company .....

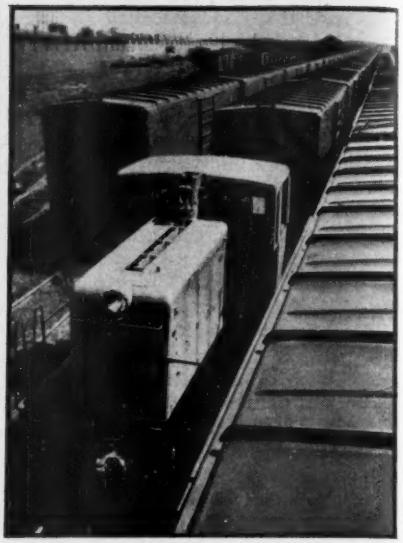
Address .....

City ..... State .....

Acme Steelstraps

ACME STEEL CO. CHICAGO

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11



ROLLING OUT THE CARS

Pullman-Standard Car Mfg. Co. is turning out welded steel "package"—or standardized—box cars like these at the rate of 54 a day. That means that one car is coming off the assembly lines of its Michigan City (Ind.) plant every 10 minutes. During February the company's total production of all types of cars reached a postwar peak of 2,707. The standardized car, which Pullman-Standard pioneered, accounts for about 20% of the company's total car output.

SAFEWAY SUIT ENDS

A five-year-old federal antitrust suit against Safeway Stores, Inc., second largest chain of food stores, ended suddenly last week. The chain handed in a nolo contendere plea and agreed to fines of $40,000.

The suit, which named Safeway and two subsidiaries, was ready for trial this week in the Kansas City (Mo.) federal district court. The charges resulted from a rash of Dept. of Justice investigations of leading food chains going back nearly 10 years (BW—Apr.14'45,p98). The Great Atlantic & Pacific Tea Co. was the first to be tried; it lost the initial round in a federal court in Danville, Ill. (BW—Sep.28'46,p18), but has appealed. A similar case against the Kroger Co. has not yet come to trial.

Safeway's reason for pleading no contest: to save time and huge trial costs. It had already cost the chain an estimated $200,000 to $300,000, the government $100,000 to prepare their cases. Three officers were fined; indictments against 10 other employees or former employees were dismissed "with prejudice"—which means that they cannot be prosecuted later on the basis of the original charges.

Gypsum Squabble

U. S. Gypsum asks court to prevent the city of Baltimore from financing a new plant for National Gypsum.

Baltimore has become the strategic objective in a battle between the nation's two largest producers of gypsum products—United States Gypsum Co. and National Gypsum Co.

Next week the courts will take up a major point of issue between the two. The Circuit Court of Maryland will have to decide whether or not it is legal for the city of Baltimore—through its Port Development Commission—to finance the construction of a paper mill for National Gypsum. U. S. Gypsum claims that it isn't.

• **Baltimore Salient**—Baltimore looms large in the postwar expansion plan of National Gypsum (BW—Jul.27'46,p60). Recently the company started full production at its new $4-million board and plaster mill there. If the plans for the paper mill go through, Baltimore will become the Buffalo company's most important manufacturing center.

The Port Development Commission got into the picture three years ago when it agreed to finance the construction of a city pier to be used by National, adjacent to the company's board and plaster plant. Purpose of the pier: to bring in gypsum rock from Nova Scotia. The commission put up $1.5-million, to be amortized in 30 years by the rental fees paid to the city by National.

U. S. Gypsum took no issue with this action. It's the kind of job that the commission was set up to do; in its 26-year history it has worked out similar pier deals with the Western Maryland Ry. and the United Fruit Co.

• **Objection**—But U. S. Gypsum did take exception to some further plans made by the city fathers and National Gypsum.

Under these plans, the commission would put up $2.4-million toward the construction of the buildings for National's projected $2.8-million paper mill. The company's stake would be $400,000, equipment would cost the company $2-million more. As in the case of the pier, the city would get its money back in rentals over a 30-year period. After that, National Gypsum would have an option to lease the city-built facilities for another 10 years.

Two months ago U. S. Gypsum's president, William L. Keady, entered a bill of complaint to restrain the city from going through with this National deal. He charged that the new construction, to be financed through the

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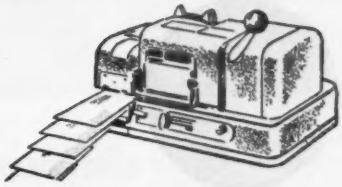
stamp, date, postmark,

seals flap same time!



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how well do we understand growth?

All living things grow, most of them to predictable size. The orthopedic surgeon can measure the bones of a two-year-old child, and predict his adult height within a fraction of an inch. But occasionally growth goes wild, and produces a side-show freak. The tabby cat's ancestor was the immense sabre-tooth tiger, and the ponderous work horse had an ancestor less than seven inches high!

Industrial growth is less mysterious, and here at CSC we understand it well. CSC is truly a "growth industry," a company that has expanded steadily and logically from one product in 1918 to more than 200 chemical products today.

CSC's growth can be charted in two ways. To satisfy expanding industrial needs, we make *more* of the basic chemicals on which the company was founded. Second, CSC has developed *new* products and *new* processes through constant research. This second kind of growth has resulted in the commercial development of the powerful insecticide, benzene hexachloride; mass production of crystalline penicillin; new and better automotive specialty products.

Today, the CSC industrial family consists of four major divisions: Industrial Chemicals, Agricultural Chemicals, Automotive Specialties, and Pharmaceuticals.

CSC

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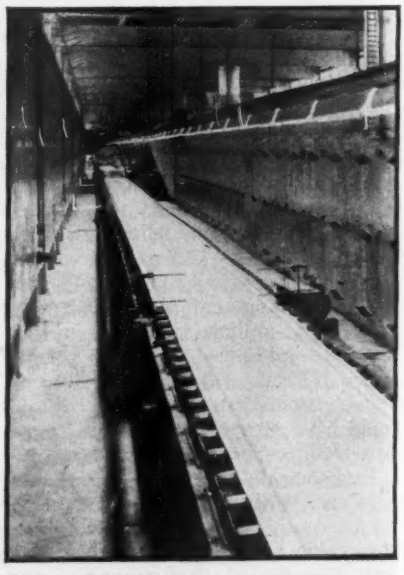
sale of city stock, would be a private—not public—project. He claimed that the 1920 law setting up the commission did not authorize the city to use its credit for a "purely private manufacturing corporation."

• **Integration Plans**—After two extensions of time, the city's reply to the suit is due next week. If the court turns thumbs down on the deal, National Gypsum says its plans for making Baltimore its major manufacturing center will go out the window. For the projected paper plant would integrate the company's Baltimore operations. Its heavy paper would be used in the manufacture of plasterboard next door.

But no matter what happens in court, National's present Baltimore operations will remain undisturbed. Now working around the clock, the new plant has boosted the company's total board and plaster production by 10%. This means that its wallboard production capacity is about 70% of that of U. S. Gypsum.

• **Automatic Operation**—The new plant, though not revolutionary, embodies National's 20 years of experience in the business. Automatic operation has brought about more efficient production. "Magic eye" system synchronizes the progress of a continuous strip of plasterboard over a quarter of a mile of belts and rollers (picture, below). The plaster "sandwich" is reversed, chopped into sections, and dried automatically.

The Baltimore development is only a part of National's postwar expansion program. In two years the company has spent some $26-million on new plants and facilities. The program is now virtually complete, except for the West Coast phase, a $6-million project—including quarries and plasterboard plant—in California. This will be National's first move beyond Texas and Iowa.



PLASTERBOARD moves in long strip from National Gypsum's Baltimore plant

Photo Flash Fight

CAA says bulbs can be flown without danger of fire, but airlines want proof before they will agree to carry them.

Photo flash bulbs were in the middle of a controversy between the nation's airlines and the Civil Aeronautics Administration last week. CAA said the bulbs could be flown; the airlines said that they wouldn't be. This week it looks as if the bulbs will stay grounded for some time.

• **Minor Danger**—CAA has no ruling, but it feels the danger of the bulbs' ignition by radar (BW—Dec.6'47,p60) is minor. Even if the bulbs do go off, CAA rules out any danger of fire; it quotes the official Civil Aeronautics Board report on United Air Line's Bryce Canyon crash: ". . . The amount and rate of heat dissipated is insufficient to ignite even the most highly inflammable material normally carried in baggage in flight." CAA holds this to be true for freight shipments as well as passenger baggage.

But, the bulbs still aren't riding the airways. Manufacturers ship them by ground transportation and advise others to do the same. Nineteen scheduled airlines, sticking by the official air freight rules tariff, won't accept them. This tariff is issued by Air Cargo, Inc., and is the result of instructions from member airlines.

• **Real Reason?**—One CAA official suggests that the real reason for the airlines' ban is that bulbs don't offer much paying weight. The airlines retort that they are eager to carry bulbs—but not before they are proved safe.

More confusion was added to the picture by the recent arrival in Washington of a radar-proof container. This is a development Wabash-Sylvania (Wabash Photolamp Div. of Sylvania Electric Products). Pan American Airways hopes CAA will approve the container—or one similar—because carrying flash bulbs overseas is profitable. But since CAA's safety rules have no regulation on air-freighting of flash bulbs, there is no way that it could either approve or disapprove Sylvania's offering.

• **Tests Due**—However, there is hope for solution. CAA calls the whole thing a "tempest in a teapot," but due to the wide publicity, CAA, CAB, the Army, the Navy, and the manufacturers are preparing a series of tests to settle the controversy. The Air Transport Assn., representing the airlines, forecasts that they will resume air shipment of bulbs before long—though perhaps subject to certain packaging and handling regulations.

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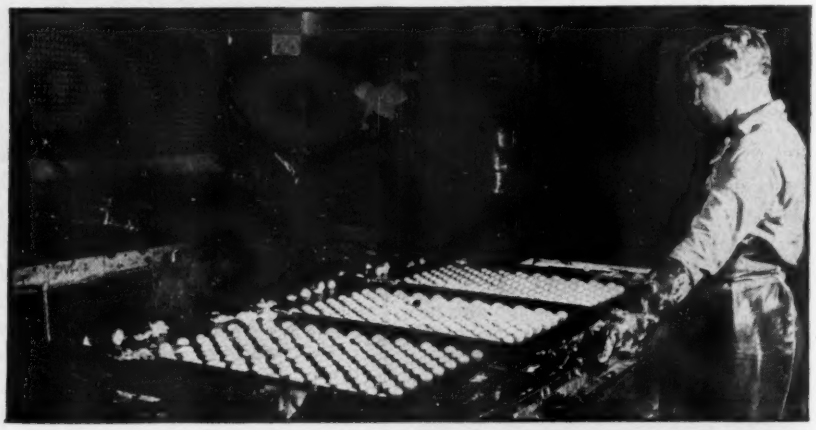
CAMERA VISITS INDUSTRY

1 Liquid latex, mixed with a soap solution and whipped, pours into mold

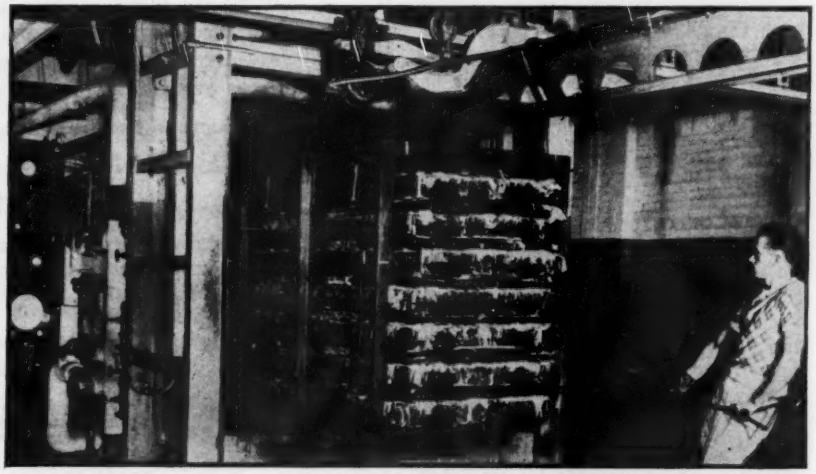
Foam Rubber For Auto Seats: How It's Done

In the last few years, production of foam rubber has become a major task for a half dozen of the country's rubber manufacturers (BW—Jun.14'47,p21). One of them is Hewitt Restfoam Division of Hewitt Robins, Inc., Buffalo.

Hewitt-Robins' confidence in foam rubber's future is typical of that felt by all companies in the field. Right now Hewitt is doubling its plant capacity to turn the stuff out. A good part of Hewitt's production goes to the auto-seat market. These pictures show how foam rubber starts out in a ladle and ends up on the seat of your 1948 car.

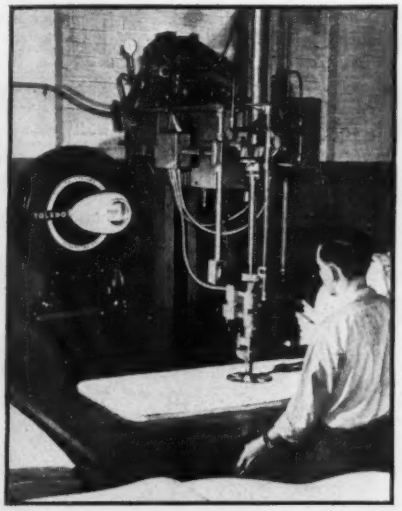


2 Filled mold is ready for oven baking. "Bisquits" on top of mold are formed of excess latex forced through perforations in mold lid. They are removed after heat treatment



3 Seven molds move out from curing ovens on overhead monorail conveyor. Heat treatment makes foam hold shape of mold. After curing, rubber is thoroughly washed

4 After washing to remove soap, cleaned pads dry for three and one-half hours



5 Device tests cushioning for softness before it goes to automaker's plant

6 Auto worker attaches rubber to frame and springs (TURN TO PAGE 40)

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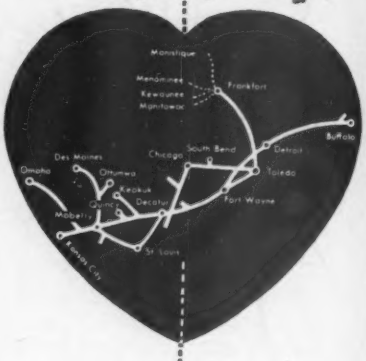

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WABASH RAILROAD

7 Assembled seat frame and cushion are ready for finishing material. "L" arm carries assembly on monorail conveyor to finishing line

8 Hydraulic loader picks up completed seats from conveyor line (left), installs them in finished auto bodies. Loader eliminates manual handling

Most Foam Rubber Goes into Cars

Of course, auto seats are only one of the big uses of foam rubber—although some 70% of the present total output is going that way. Furniture seats, train seats, mattresses, and all sorts of odds-and-ends are coming in for a share of the stuff.

Right now, however, price is a deterring factor to many manufacturers who would otherwise be interested. Foam rubber costs about $1 a lb., which is twice its prewar level. At that rate, a foam-rubber mattress costs one-third more than a conventional one.

Foam rubber manufacturers are pinning their price-cutting hopes on mass production. But most of them admit this is at least four or five years away. Even then, they don't expect to be able to compete with cotton, felt, and steel-coil upholstery in the medium- and low-price ranges. Some mattress and furniture makers have taken a lead from auto makers by adopting the compromise solution of using foam rubber over coil springs. Quality furniture makers even find a price advantage in using foam rubber alone in some applications despite its cost. Cushions, for example can be molded to shape, then covered.

BIG REPUTATIONS

rest on little metal parts

In almost any electrical mechanical or electronic product there are certain small parts which the user rarely notices. Their great importance however, causes the designers to sit up nights. The tungsten contacts in your automobile, for example, and the molybdenum grids in your radio tubes. American manufacturers have made their reputations because of scrupulous attention to these details, and their insistance upon dependability and quality.

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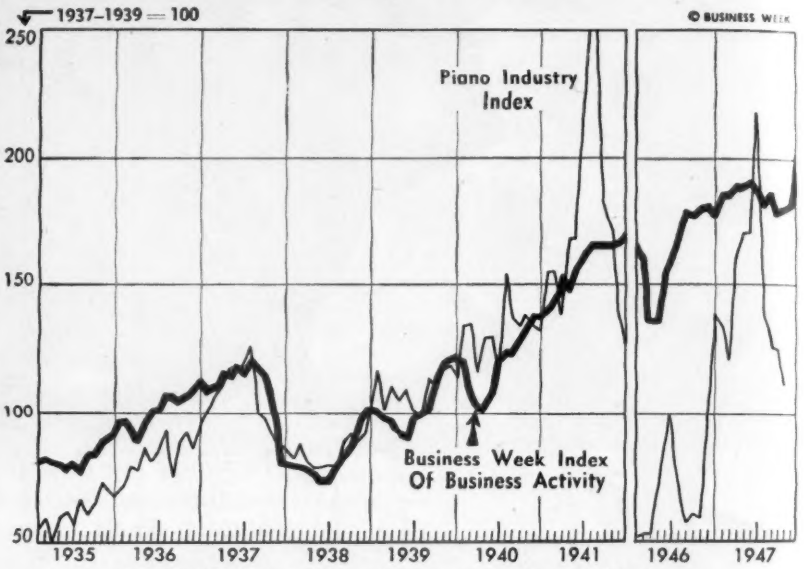


COMPARISON of piano industry output and general business

Indexes Compared

Sirs:

We have worked out comparative index figures between piano industry production and the Business Week Index [chart above] . . .

Our association publishes manufacturers' output in units each month, and we have these available back to 1935. In order to secure a fair comparison we used a 1937-1939 base for the piano industry and transferred your BW index to the same base figure. I think you will find the attached curves most interesting . . .

You will note that as soon as [our industry] became oriented our index follows the BW index with remarkable consistency up to the middle of 1941 when we were really liquidating our business prior to entering war work and then, of course, index figures were very misleading. In my chart I have ignored the years 1942 to 1946. We produced a very few instruments in 1942 and were out of the market entirely by May and then, of course, the intervening period was devoted entirely to war work.

We resumed production in January 1946, and since that time the index for our industry has been low entirely because of our inability to secure an adequate material supply. As you will see, our index has hopped around but is tending to stabilize near the BW index line. I should say here that my curves allow for seasonal variation, the same as yours, and I have accomplished this by using a three-year sectional moving average with the 1937-1939 base . . .

We are now preparing a means for forecasting our own sales by comparing our index with yours. I have always regarded this Business Week index very highly, since it is published at frequent intervals and therefore gives the manufacturer something to tie into without being several months in arrears. However, I didn't expect to find the tie-in quite as close and, of course, was delighted to know that this is true.

GEORGE H. STAPELY
PRESIDENT,
EVERETT PIANO CO.,
SOUTH HAVEN, MICH.

Chromite Supply

Sirs:

It seems to me that in two respects your article [BW—Feb.7'48,p32] gives a wrong impression of the United States' position in chromite, the ore of chromium, which is one of the most essential alloying elements for steel.

In the first place, both the metallurgical and refractory grades of this ore are in short enough supply to require a governmental stockpiling program. I realize that in speaking of "no shortage of the ore" you may be referring to its immediate availability in foreign locations or you may be limiting your attention to the less critical type of ore used in the chemical industry. The fact remains, however, that the reserves outside the U.S.S.R. of the metallurgical ore essential in alloy—and particularly in stainless—steel, are measurable in probably less than 20 years of normal world demand.

In the second place, for the last quarter and the entire year 1947, im-

ports of the metallurgical ore were sustained largely by shipments from the U.S.S.R., which country also topped the list of all our sources of chromite in 1947, including Transvaal. . . .

MORGAN SIBBETT

COLUMBUS, OHIO.

• One of the largest suppliers of ferrochromium reports it has plenty of ore and plenty of ferrochromium. We understand that this supplier could import more ore any time it needed to, and that it could smelt more than it is now smelting. Our inquiries indicate that the only possible shortage that could develop in ore supply, at least from Transvaal, would result from a shortage of shipping.

Reader Sibbett is indeed right that the U.S.S.R. is our chief source of supply. Total receipts of metallurgical grade chromite from Russia last year were 192,808 gross tons—far larger than the total from any other country. We had done our checking as to the major sources of chromite with operators in the open spot market. None of the Russian ore, according to our later information, is handled in this market. It is supplied under large contracts made by Amtorg with United States buyers and is never reflected on the open market.

How About Capital?

Sirs:

I am forever reading, and seeing it repeated as if it were a crime, that corporations made the ungodly net income of $17-billion in 1947. Believe me, I do not know what our wasteful and extravagant government would do without these corporations to pay income tax, and their shareholders again on the dividends they pay.

They never advertise the amount of capital owned and borrowed by these corporations to produce this net income. Do you have that figure? Do you have the net income of the 22,000 larger corporations the administration says will pay the $3.2-billion to pay the $40 each as a sop to the taxpayers, and also the amount of capital owned and borrowed to produce it? It seems no one ever thinks to let the people know such things to assuage the public thinking against these "thieves and robbers"(?).

The government must have it, if there is some way to get it. I would certainly appreciate this information.

We did not hear much complaint about the net incomes of these corporations in the 1930's.

W. N. MORRIS

HOUSTON, TEX.

• Probably the most useful source for these figures is the Quarterly Industrial Financial Report on All United States

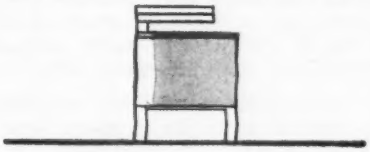
PLAIN TALK ABOUT PLASTICS

New designs win new markets for manufacturers using plastics

Lighting designers feature LUSTRON

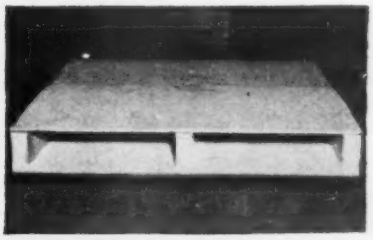
Designers find unique advantages in Lustron* for lighting. Easily molded in large, non-shattering sections, Lustron has light weight, high refractive index, excellent translucence. This Leader Electric fluorescent light fixture, for instance, has Lustron's advantages for lighting, plus its ability to yield more units per dollar in products outstanding for style and appearance.

(Molded of Lustron by Bernard Edward Co., Chicago. Manufactured by Leader Electric Manufacturing Corp., Chicago.)



New high gloss for hard finishes

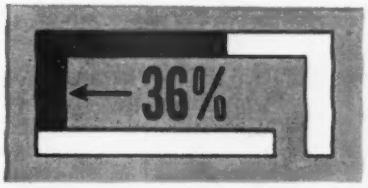
New designs in durable consumer goods get new high gloss in hard finishes with Monsanto's Resimene* 880 series. Washing machines, automobiles, other consumer products, get Resimene's fast curing economical production, plus alkali resistance, flexibility and adhesion, solvent resistance and compatibility with other resins.



RESINOX extends life of plywood

Resinox* impregnated paper laminates provide plywood with surfaces which are tough and non-checking, and resist moisture, abrasion, solvents and heat. Plywood concrete forms protected with Kimberly Clark Resinox impregnated overlays may be used up to 100 times where unprotected plywood forms usually are discarded after 10 re-uses.

(Resinox impregnated pallet resists rough handling in factory use.)



Plastics prominent on store counters

First-floor plan of a typical Fifth Avenue New York chain store gives plastics approximately 36% of available floor space. The percentage shows that the plastic market is strong . . . growing stronger . . . that new designs and lower prices could well mean profitable ways of using plastics in *your* business. The handy coupon will bring you full information.

Reg U. S. Pat. Off.

MONSANTO

CHEMICALS — PLASTICS

MONSANTO CHEMICAL COMPANY, PLASTICS DIV.
Dept. WBP4, Springfield 2, Mass.

Please send me information ☐ *General (12 basic Monsanto plastics)* ☐ *Lustron* ☐ *Resinox* ☐ *Resimene.*

Name _____ Title _____

Firm _____

Type of Business _____

Address _____

City _____ State _____

SERVING INDUSTRY . . . WHICH SERVES MANKIND

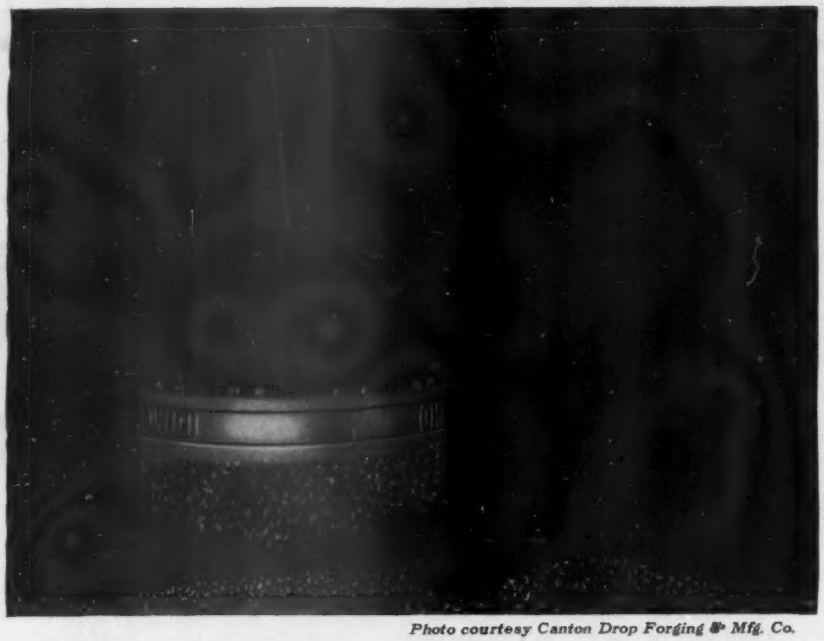


Photo courtesy Canton Drop Forging & Mfg. Co.

Underground magnets move 40 tons of steel scrap turnings *in 8 hours*

Push a wheelbarrow through your plant and collect a ton of steel scrap turnings. Hours from now—after primitive shoveling, shoving and dumping — you'll have labored through a job that magnetic materials handling *completes in minutes.*

The Ohio Lifting Magnet shown above is a magnetic wheelbarrow that moves TONS of scrap automatically—*in magnet minutes instead of manhours.*

Steel turnings from metal working machines chute into an underground tunnel. A 36" diameter Ohio Magnet, suspended from a carrier on a Cleveland Tramrail track, draws up turnings and carries them to a scrap bin beside the railroad siding. The magnet then drops its load and returns to the far end of the tunnel for more scrap. Fully automatic, a round trip is completed every three minutes. *That's disposing of more than two and a half tons an hour.*

And with an Ohio Magnet in each of two tunnels, the company can automatically move *40 tons of scrap* in a normal eight hour shift!

Have you neglected to speed and simplify material handling methods? Lifting capacity of Ohio Magnets ranges from 110 to 110,000 pounds. You can unload a truckload of strip steel coils or bundled sheet and strip in less than ten minutes! Or—you can whisk fabrications down assembly aisles instantly without wasting time attaching slings.

Thousands of Ohio Magnets are cutting costs in manufacturing plants . . . steel mills . . . railroad, scrap and shipyards. Let Ohio Magnets move ferrous —or partially ferrous—metals *faster for less cost* in your plant too. Write today to Ohio: *for 25 years a leader in magnetic materials handling.*

Ohio MAGNETS

also a leading name in the small motor field

THE OHIO ELECTRIC MFG. CO.

5920 MAURICE AVE. • CLEVELAND 4, OHIO

Manufacturing Corporations published by the Federal Trade Commission and the Securities & Exchange Commission. This report covers about 5,000 corporations and gives the profit position and a condensed balance sheet showing capital assets and liabilities.

Data on capital assets are also available from the Dept. of Commerce, and current figures on capital flotations prepared by the Commercial & Financial Chronicle may be found in the Federal Reserve Bulletin or the Dept. of Commerce's Survey of Current Business. In using these figures a careful check should be made as to their comparability because of conceptual differences in their preparation.

Statistics for Marketing Men

Sirs:

You call attention of marketing men to a recent Dept. of Commerce release on business units, employment, and payrolls, by industry, state, and county [BW—Jan.3'48,p16].

The release, covering the first quarter of 1946, and "worked up from hitherto untouchable Social Security returns" is cited as offering the "most up to date government figures available."

A number of state employment security agencies have published more recent and more comprehensive figures on employment and payrolls covered under their state unemployment compensation laws. Our data on the size of business units in Ohio by county as of September, 1946, were released in May, 1947. There also are tabulations, through the fourth quarter of 1946, giving the industry detail on covered employment and payrolls for Ohio counties. Comparable data for 1947 are scheduled for release by next October.

WILLIAM PAPIER
CHIEF, DIV. OF RESEARCH & STATISTICS,
BUREAU OF UNEMPLOYMENT COMPENSATION,
COLUMBUS, OHIO

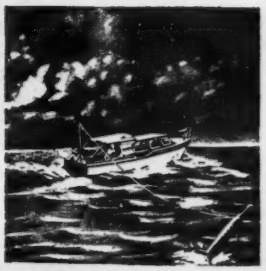
• Reader Papier is quite right that the breakdown compiled for the State of Ohio gives marketing men more recent and more comprehensive figures than does the Commerce Dept. compilation. However, it remains that the Commerce data is the latest and most comprehensive breakdown of business units all in one place on a national scale.

Sharpening Incentives

Sirs:

Re your editorial, "To Sharpen Incentives" [BW—Feb.14'48,p120]:

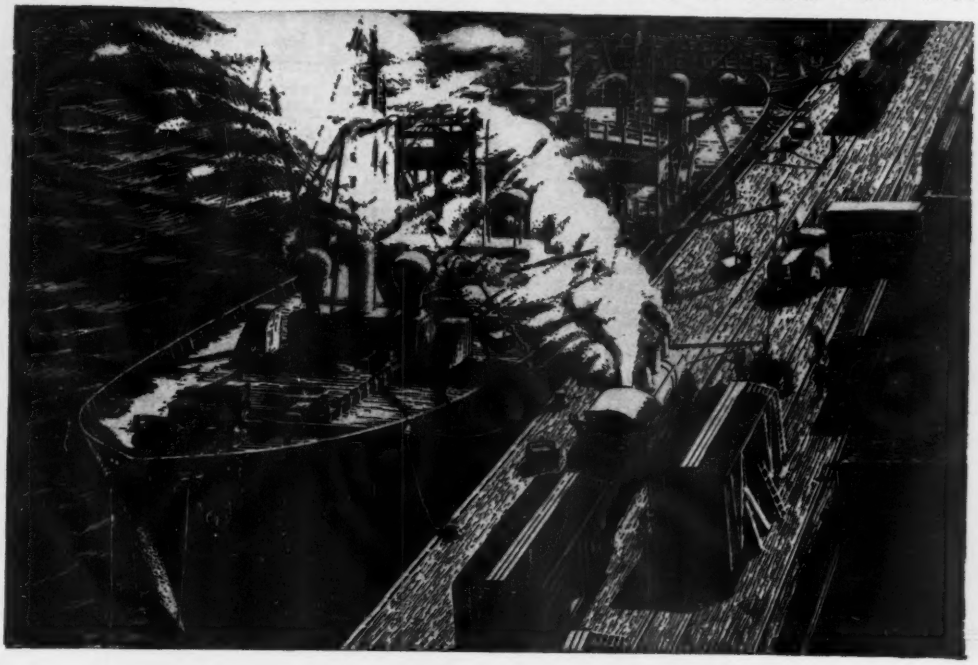
A step in the right direction! Taxes on business are vicious and should be eliminated. Why? Because they enter into the decisions of management to produce or not to produce, and the



MISSISSIPPI

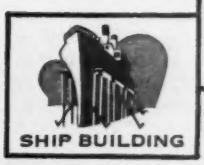
Gulf Coast* AREA

WITH 365 DAYS A YEAR FOR WORK AND PLAY



Excellent deep-water port facilities coupled with proximity to Latin American and other foreign markets are important advantages that await industry along the rich Gulf Coast of the state of Mississippi. Caressed by balmy sea breezes, this area affords a year 'round climate for work and recreation unsurpassed anywhere. Through the unique BAWI* program, the Gulf Coast area offers liberal tax exemptions, intelligent, friendly labor, cooperative state and local governments, abundant raw materials, and in many cases, even local financing for erection of industrial buildings. Pipe lines connected with the world's largest gas reserves bring low-cost, dependable natural gas to the factories and homes of this area. Investigate the Mississippi Gulf Coast . . . soon!

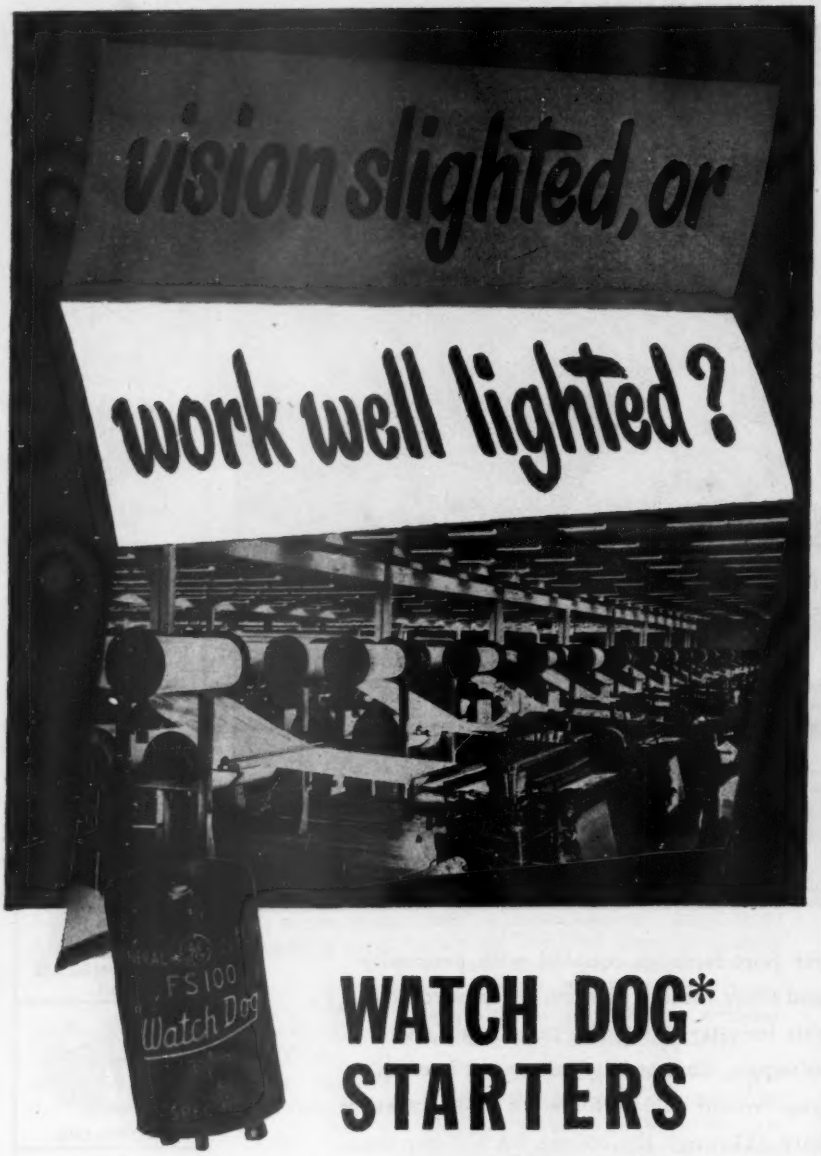
*"Balance Agriculture with Industry"



UNITED GAS ...Serving the Gulf South

* Write Mississippi Gulf Coast Council, P. O. Box 905, Biloxi, Miss., or Industrial Development Director, United Gas, Shreveport, La.

This ad is one of a series on the industrial advantages of the various sections of the "Gulf South," the area served by United Gas.



WATCH DOG* STARTERS make the difference!

Fluorescent lighting is a fine booster for production and for the morale of employees—when it provides the kind of steady, useful illumination that modern offices and plants demand. And that's where General Electric Watch Dog starters come in. They're made with just one thought in mind—to help you get the best possible lighting with the least cost for maintenance and replacement. As soon as failing lamps start to flicker, Watch Dogs cut them out of the circuit in less than a minute. After relamping, a push of a button puts your fluorescents right back at their peak. Eyestrain caused by constant blinking is completely eliminated, and you will be surprised at the improvement in production efficiency in any working area.

General Electric Watch Dog starters have some other pretty important advantages, too. They protect ballasts by eliminating the torture of intermittent service.

They frequently outlast ordinary starters *5 to 1.*

***Watch Dogs are only one of the complete line of accessories which General Electric makes, to help you make the most of fluorescent lighting. Better check with your lighting contractor, or supplier, to make sure that the fixtures you buy and the lighting systems you operate are G-E equipped* all the way through.**

For full information, write to Section Q71-410, General Electric Company, Bridgeport 2, Connecticut.

*Trade-mark Reg. U.S. Pat. Off.

GENERAL ELECTRIC

wheels turn only when management says, "Yes." Also, if the tax burden were all on individuals directly, instead of indirectly through corporation taxes, we should then have strong public support for governmental economy.

Why fear profit inflation? It stimulates production. Thus it checks itself and is temporary. It is wage inflation we should fear; for that is permanent. It eats savings because one can not wait out a permanent price rise.

The joker in this: How can we teach the voter that it is he who finally pays all taxes? And how can we teach that he will vote wiser and fare better if the bill comes to him where he can see it than if he hides it in the prices he pays?

KERR ADDISON

WELLESLEY HILLS, MASS.

Sirs:

Regarding "The Trend" on how "to sharpen incentives," I agree now with your opinion for the future. NOW, we need to apply tax reduction on a similar scale to the FIRST $50,000 of profits for NEW companies—but on a percentage basis preferred, based on invested capital.

If a new steel, cement, or chemical plant required $5-million to start and grossed (or should) $1-million perhaps in the second year of operation, then the FIRST $500,000 in each of the first ten years should only be taxed 50% of normal old-line rates. This, provided the amount saved by tax reduction was used to retire bonds, loans, preferred stock, etc.—thus reducing invested capital.

Such an equitable tax plan would provide the needed incentive in many heavy industries which require large invested capital for even a small beginning.

RAYMOND W. HILLES

PHILADELPHIA, PA.

Sirs:

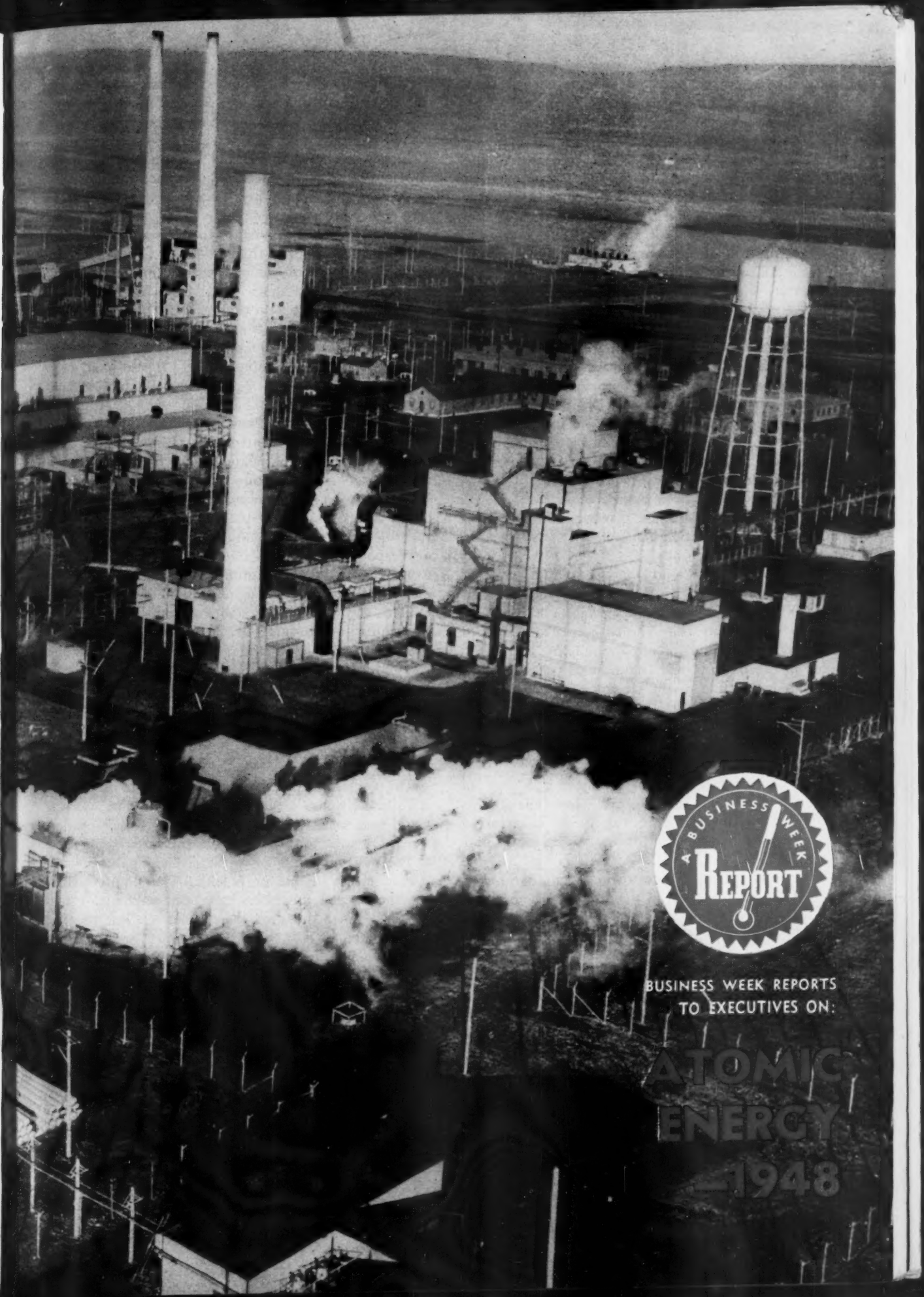
In the contract machine shop business, I believe that federal income tax authority is unwisely used to restrict the amortization of new equipment.

Further, I believe real relief should be granted to those who, like ourselves, were encouraged and even persuaded to take on war work and granted priority certificates to develop capacity and were then denied amortization certificates.

J. H. STERNBERG

PRESIDENT,
AMERICAN DIE & TOOL CO.,
READING, PA.

• We believe with Reader Sternberg that there should be a change in the Treasury's depreciation policy. The cost of new equipment is so high these days that business should have some compensation in the way of taxes for the large investment they must make for capital goods to furnish employment.


A BUSINESS WEEK
REPORT
BUSINESS WEEK REPORTS
TO EXECUTIVES ON:
ATOMIC
ENERGY
1948

Is AMERICA MOVING AHEAD on atomic energy? How fast? And in what direction?

For the businessman trying to gage the eventual impact of atomic energy on his industry, for the citizen trying to form an intelligent opinion on this national issue, the facts are extraordinarily hard to come by. The information that anyone would naturally ask for first—on production rates, costs, resources, and the like—is all stamped top secret. Even the nature of the problems ahead are obscured, if not hidden, by secrecy requirements. So are the technical reasons for policy decisions, and the terms of contracts.

But a re-examination of the whole atomic energy program by Business Week has yielded results in the form of hard facts and firm conclusions. We didn't ask for, and didn't get, any secret information. But we have talked to government officials, both in and out of the Atomic Energy Commission. We have visited every major atom plant and laboratory. We have conferred with industrial leaders—both those involved in the atom program and those who have chosen not to be involved.

These are the conclusions we have reached:

The short run—The atom management's No. 1 job, of course, is to keep the war-built plants running, to maintain the bomb production achieved by the Manhattan District.

On this, there has been no faltering, no interruption of production.

At Oak Ridge, efficiency in the separation of fissionable uranium (see glossary, page 53) has been greatly stepped up. At Hanford, production of plutonium has been maintained in the face of great technical obstacles. At Los Alamos, manufacture of the electronic and mechanical apparatus of the bomb has been headed from a laboratory toward a factory operation.

The long run—Equally important, however, is the job of advancing the atomic art.

In military terms, this means: Does the U. S. wait for the rest of the world to catch up with its wartime achievements? Or does it push ahead with the development of better weapons, and more of them, so as to keep its present lead?

In technical terms, it means: Are Americans learning more about what goes on in the atomic nucleus, about how to control atomic reactions? Are the theoretical possibilities being reduced to engineering practice?

At this level, no such unqualified endorsement as the short-term job has earned can yet be given to the government's over-all atom program.

Six months or so ago it would have been necessary to report that atomic development work was in a state of near stagnation. For example:

(1) Preparations for a new and bigger plutonium plant—AEC's highest priority project—were enmeshed in the engineering and personnel difficulties of a new staff tackling a tremendous job.

(2) Weapons research was at loose ends. It was operating in a vacuum, without guidance from either the military or AEC.

(3) Construction of new types of atomic reactors—the key devices for utilization of nuclear fission—was being held up by vacillation and indecision in AEC.

(4) Throughout the atomic project, morale was low. Many technical people were leaving; many of those who remained were discouraged and uncertain. They were conscious of a lack of direction and impetus. Unable to get Washington approval on new programs, they often were reduced to marking time.

That was late last summer. And that was the bottom. At just about that time, the year-old AEC began to get a grip on its huge job. Things began to improve. Today the situation is still spotty—good here, bad there—but everywhere it is visibly on the mend.

An early and fruitful step was the appointment of an able group of regional administrators who could give local leadership to the atom projects. These men were granted a large measure of autonomy. At Hanford and Oak Ridge, for instance, the local men can O.K. expenditures up to $5-million without reference to Washington; this is almost unprecedented in government. And this frees the operating contractors at the sites from a tremendous amount of waiting on Washington.

Additional contractors were brought in to bolster the design force on the new plutonium plant at Hanford, and this program is now rolling.

Weaponeering at Los Alamos still has a long way to go to match the drive of Hanford. But at least a research program has now been agreed on among AEC, the military, and the scientific laboratory, and the laboratory is squaring away to undertake it.

Similarly, in the reactor program, the designers are ready to go now on three or four new piles which have been awaiting the nod from Washington for a year or more.

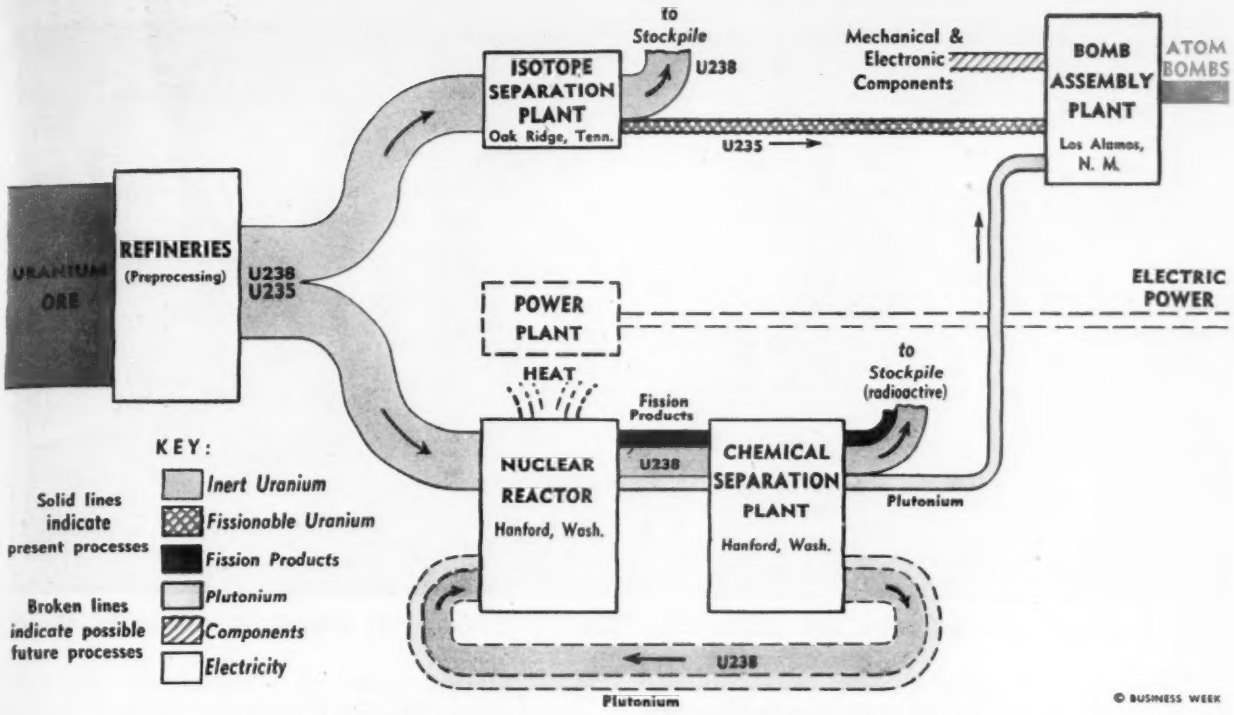
To What End?

The program that AEC is now beginning to push along is above all things an armament program. The way the world goes now, the commissioners figure that production of bombs takes precedence over everything else.

The publicity still goes to the civilian applications of atomic energy—actual or potential. In almost weekly speeches the commissioners have been emphasizing that there's more to the atom than explosives. But the fact is that around 80% of AEC's money and effort is directly aimed at maintaining and increasing the production of bombs.

This concentration on weaponeering inevitably has a retarding effect on civilian applications. The most immediate application—production and distribution of radio-isotopes—doesn't compete seriously for material or engineering talent. That's why it has been able to forge ahead rapidly.

But application of the atom's power to nondestructive uses does definitely compete for both material and talent. The result is that work in this field has had to be laid out on a rather slow schedule that puts economically significant power utilization a generation away. In order to economize on engineering talent, particularly,



THE ATOMIC PROCESS: From uranium ore to bombs, isotopes, and power

the power work is largely being put into academic hands; AEC's industrial contractors are being discouraged from putting too much effort into power.

Not only is AEC's program a military one—it is a rather narrowly military one. Even such projects as atomic propulsion of warships, bombing planes, and missiles are subordinated to production of explosives. This policy is disturbing even to some people in the armed forces.

On the industry side, much of AEC's difficulty in attracting contractors, in laying a broad base of industrial participation in atom work, is traceable to the postponement of economically interesting applications.

The Socialized Atom

Atomic energy, under the McMahon Act, has been described as an island of socialism in a sea of private enterprise. Never before has so potentially important a technology been subjected so completely to public control.

Production of fissionable material (bomb stuff) is now overwhelmingly the biggest part of the atom industry. This, and the production of atomic weapons, has been made a government monopoly. It is illegal for anyone to produce or possess either uranium 235 or plutonium, except as a government contractor or except in negligible quantities incident to other activity.

All other atom work except research is subject to government control through a system of federal licensing.

Theoretically, private atom work is possible under this law. A firm could finance and carry on research. If it made a discovery in the field of production it could claim a special government award. Or, on the basis of an application discovery requiring use of fissionable materials it could seek a license and go into business. But the prospect is hardly very attractive. There's no promise of exclusive patent protection in a discovery. And there's complete uncertainty as to future federal policy.

Some businessmen are beginning to argue: If the government's monopoly were eliminated and normal patent incentives restored throughout the atomic field, private money would flow in and development would go forward in a manner more businesslike, faster and cheaper.

This approach is found particularly in the more patent-conscious sectors of business such as the oil and chemical industries. Here, the patent clauses of the McMahon Act are seen as an attack on the patent system generally.

Most businessmen disagree. This field, at this stage, they feel, is inevitably governmental. They can't see any possibility now that business would want to invest much in the atom. Almost any sort of atomic research or development work takes large money, running into millions; the pay-off is distant and uncertain. Moreover, under any law, the government's huge bomb program is clearly going to dominate the field for the visible future—and this in itself makes the atom a relatively unattractive investment for private money.

So the McMahon Act, these businessmen say, is reasonably satisfactory for the present. It gets the work done, one way or another. And when the time comes for commercialization, everyone will start even patentwise.

BOMB BUSINESS

THE UNITED STATES came out of the war with an atom-bomb industry consisting of four major plants: two at Oak Ridge to separate the natural explosive, uranium 235;

ATOM BOSSES—For government (left to right): Carleton Shugg, Hanford; J. C. Franklin, Oak Ridge; Carroll L. Tyler, Los Alamos

one at Hanford to produce the synthetic explosive, plutonium; one at Los Alamos to assemble bombs using these explosives.

The Quick Plant

The first plant to deliver appreciable quantities of explosive was the electromagnetic plant (known as Y-12) at Oak Ridge, then operated by an Eastman Kodak subsidiary. This plant contains a large number of machines called calutrons, each of which is capable of producing U235.

The calutron is a modified and overgrown mass spectograph. Uranium is ionized—broken down into electrically charged molecules—and the ions are shot at high speed past a tremendous magnet which deflects them to one side. The U235 ions are deflected more than the slightly heavier, nonexplosive U238. They come out at a different place, therefore, and can be collected separately.

This sounds nice, but, unfortunately, no one has yet figured out how to ionize uranium in any quantity. Hence each individual machine has a low output, the power consumption is very high, and the manpower required to produce a pound of material is all out of proportion with alternative methods.

So early last year large-scale production at Y-12 was halted. Most of the plant is being held in standby. Some of the calutrons are still being operated experimentally in an effort to find a way around the low efficiency. Several others have been converted to separate naturally occurring isotopes of other elements than uranium; these are useful for scientific tracer work in much the same way as the better publicized radioactive isotopes.

On this basis, the plant is being looked after by Carbide & Carbon Chemicals Corp., a Union Carbide subsidiary which now operates all the major facilities at Oak Ridge.

The Successful Plant

The second and best known of the U235 plants is the gaseous diffusion (K-25) plant at Oak Ridge. This is the most gee-whiz phase of the whole bomb project. It is believed to be the largest industrial operation ever carried on under one roof. Its construction involved an almost endless list of fantastically difficult and unprecedented industrial problems: in pumping, in corrosion resistance, in welding techniques, in high vacuum, in leak detection, in instrumentation. It cost $500-million to build. It's the only one of its type in the world. And in all probability there will never be another one like it.

In this plant uranium, combined with fluorine to form a gas, is forced through stage after stage of sieves, barrier membranes—thousands of stages. The light isotope—U235, the fissionable one—goes through the sieves a little more easily than the heavier U238. So what comes out at the far end is enriched in U235.

K-25 has been by far the most successful of the atom plants. Almost from the start it ran without serious difficulties.

Nevertheless, AEC feels that it is technically a blind alley.

For one thing, it is the most expensive and difficult to build of all the plant types. More important, it is intrinsically wasteful of nuclear fuel. It extracts the naturally fissionable 0.7% from uranium and discards the rest.

So there are no plans for additional facilities of this type. But K-25 itself will be kept running indefinitely—certainly as long as accumulation of bombs has a top priority. And even after that, there will be uses for concentrated U235; production of enriched fuel, for instance, for certain types of reactors. And there are hints that the uranium bomb is in some ways superior to the plutonium bomb.

Meanwhile, the K-25 process has been pretty steadily

FOR CONTRACTORS (left to right): Norris E. Bradbury, Los Alamos; Clark Center, Oak Ridge; R. S. Neblett, Hanford and the Knolls

improved since the end of the war. The result: Output of U235 has been substantially increased, labor requirements have been greatly reduced.

The Promising Plant

No such postwar increase in output has been achieved at the third explosive plant—the Hanford Engineer Works. As a matter of fact it is a technical miracle that production has been held up to the wartime level—as it has been.

Where K-25 applied fairly well established industrial principles, even though at a level of extreme complexity and difficulty, the three Hanford units utilize processes that had never occurred on earth until December, 1942.

Designers of the three Hanford piles had only one motive: to make enough plutonium for a bomb. If the piles continued to operate afterwards, so much the better. But they weren't wasting much thought on that question. Few of them, probably, would have bet that the piles would still be running in 1948.

Shortly after the chain reaction in the first pile was turned on there was one terrible day when the reaction simply died away, spontaneously. Fission products—pieces of split uranium atoms—were "poisoning" the pile. In what has been described by people who were there as the most brilliant single feat of engineering they know of, the trouble was diagnosed and a solution found within a matter of hours.

There have been a succession of lesser crises since. As recently as last year it was at times a question how many more months the piles could be kept going.

The Hanford process strikes out on a completely different tack from Oak Ridge's. No effort is made at the tough separation of U235 from U238. Instead, the U235 is "burned up" in a chain-reacting pile. In its burning, it transmutes a little of the inert U238 into the synthetic element, plutonium. This is never found in nature. It is fissionable. And—most important—it differs chemically from uranium. So it can be separated by comparatively straightforward chemical methods.

Each of the Hanford piles is essentially a stories-high block of very pure graphite encased in some feet of concrete shielding. Into this block are inserted slugs of metallic uranium sealed into aluminum cans to protect them from corrosion. Because the pile is big (above critical mass), and because the graphite acts as a moderator, a fission chain-reaction takes place in the U235 content of the uranium.

After a while, the uranium slugs are removed. They're dissolved in acid and put through a series of precipitations and resolutions which finally separate out the plutonium —the end product of the process.

Despite all its difficulties, the plutonium process is the one on which everyone banks for the future. So AEC has started a tremendous expansion program at Hanford as its major move to step up bomb production.

One part of the program is just to modernize the three existing units—particularly, one assumes, in their chemical phases.

But the really big job is the erection at the Hanford site of a complete new plutonium plant. It will be bigger —or at least more expensive—than the existing plant; it will presumably have a larger production capacity.

The new plant isn't going to differ fundamentally from the old one. It will use fairly conventional graphite-moderated piles with natural, rather than enriched uranium. Even so, the designers are introducing more new features this time than, say, a progressive oil company would be likely to introduce in designing a new refinery. But not too many more.

One important difference: The piles will run cold instead of at a high temperature. That means there will be no way to make use of their tremendous power output.

On this job, AEC's overriding objective is a quick, sure increase in plutonium production, with no chances

taken. Advancement of the nuclear art is a very, very secondary objective.

Construction of the new plant at Hanford was one of the first decisions made by AEC when it took over from the Army. But through much of last year the project was seriously bogged down.

General Electric had just taken on the operation, succeeding du Pont, which had designed, built, and operated the plant during the war. G.E. inherited a crack operating staff from du Pont; nearly every man elected to stay with the project when the transfer was made. But G.E. inherited no engineering staff. In the du Pont tradition, Hanford was designed by the central engineering force at Wilmington.

So G.E. had to assemble an engineering force at Hanford at the same time that it tackled one of the biggest design jobs in history. And, all through last summer, AEC kept scaling up its ideas about the size of the plant.

But last September the bottleneck was broken. G.E. subcontracted the design of the chemical separation plants to Kellex Corp., the M. W. Kellogg Co. subsidiary which had designed K-25 at Oak Ridge. At the same time, another subcontract was placed with Standard Oil Co. (N. J.) to work out alternate designs for several particularly tricky phases of the chemical plants.

Today design is well advanced. Guy F. Atkinson Co.-J. A. Jones Construction Co., G.E.'s construction subcontractors, already have preliminary work under way. By the end of the year construction will be going full blast; it won't begin to taper off until 1951.

Morale On The Mesa

Los Alamos Scientific Laboratory, perched on the flat top of a mesa in northern New Mexico, is the plant where bombs actually are made from the explosives produced at Hanford and Oak Ridge. And so far, Los Alamos looks like the weakest spot in AEC's program for more and better bombs.

The weakness isn't in the actual day-by-day assembly of bombs. That has been steadily improved and is in good shape. The processes have been standardized and mechanized. No longer is assembly of each bomb a laboratory job for trained scientists.

But that is only a small part of Los Alamos' responsibility. Its real job is to produce a better bomb.

The brilliant scientific team that worked out the whole mechanism of the bomb had just one objective: to produce something that would go bang—and reasonably loud. Countless times during the research, two or three alternative lines of attack would open up. There wasn't time to try them all. Someone had to make a half-intuitive judgment as to which was best.

Threading their way through this labyrinth, the scientists came up with a bomb that could destroy a city. But it was still a bomb that used only a small fraction of the fission energy available in a critical mass of plutonium or U235. For the bomb blows itself apart before most of its explosive can be detonated.

The postwar job is to find a way to get more punch out of the bomb. So far, one gathers, no very startling progress has been made in this direction.

Part of the responsibility for this traces to Washington. Until a month or two ago, no definite research program had been worked out for Los Alamos. The whole responsibility for the direction of weapon work rested on the men on the mesa.

And that responsibility fell on an organization in poor shape to handle it. Like every war agency, the atom project suffered a considerable exodus of its best men at war's end. But nowhere was this more marked than at Los Alamos.

There were a lot of reasons for the break-up. At Los Alamos, more than anywhere else, a scientist unavoidably had his nose rubbed in the fact that he was first and foremost a weapon-maker. Although the laboratory is one of the best-equipped in the world, the emphasis was all on specific results rather than basic research.

Living and working conditions have never been good. Finally, the management of the place had created an oppressively military and dictatorial atmosphere.

AEC and the University of California, AEC's contractor on the project, are making a vigorous effort to attack the trouble at its sources. Their new program provides for devoting about a quarter of the laboratory's resources to basic research to make the place more professionally attractive.

A building program, to replace the makeshift housing with modern homes, complete with shopping and recreation centers, is being pushed at top speed.

And even more here than at the other atom towns, the AEC manager is pushing establishment of normal community life and considerable self-government.

AEC's campaign at Los Alamos is a long-range affair. The answer to whether it will pay off in bombs is months or years away.

THE ATOM IN PEACE

ONE NONMILITARY DIVIDEND from the atom program is being paid already. That's the availability of cheap, plentiful radio-isotopes. What makes this important is that the radio-isotope is a basic tool for measurement and observation. It is being used today in nearly every branch of science and, increasingly, in wide areas of industrial experiment.

The biggest potential peacetime use for atomic energy, of course, is in power development.

The key fact about development of useful power from atomic energy is that no one in the United States needs atomic power very badly.

What atomic energy could provide in the near future, most technicians guess, is a practically unlimited source of electric power. It would be a little cheaper, perhaps, than power from coal; more expensive, almost certainly, than hydroelectric power. Its most peculiar economic characteristic would be that, as far as fuel is concerned, it would cost about the same anywhere—on top of the Andes or in New York City; the plant manager could bring the day's fuel to work in his briefcase.

What They Say & What They Mean—A Glossary

The businessman who wants to keep a prudent eye on the progress of atomic energy doesn't need to study nuclear physics. But he does need to know the sort of thing that, say, a banker knows about the steel industry—what its raw materials are, its products, the major processes. So on page 49 you'll find a flow chart of the atom industry, and here is a glossary of the household words of this new business.

Atom. The smallest chunk of matter which has normal chemical properties. It is made of a few elementary kinds of particle, formed into a heavy nucleus with a positive electric charge. The nucleus is surrounded by an almost weightless cloud of negative electricity. All the chemical behavior of matter results from properties of this negative electricity. The nucleus is unaffected by any chemical process.

Atom bomb. Essentially two subcritical masses of fissionable material. When the two come together, a critical mass is formed and an explosion occurs.

Breeder pile. Any reactor in which the amount of fissionable material produced by transmutation exceeds the amount consumed in the chain reaction.

Carbon pile. A reactor using graphite as a moderator.

Critical mass. When one atom in a chunk of fissionable material splits, it emits several neutrons. Some will be absorbed in nonfissionable material, some will escape through the sides of the chunk. For a chain reaction at least one must be left to cause another fission. In a small chunk, too many will escape through the sides. As the chunk is enlarged, the proportion of neutrons escaping decreases. At "critical mass" just enough neutrons are left to sustain a chain reaction. Critical mass in a natural uranium carbon pile is on the order of tons. In pure U235, according to Werner Heisenberg the German physicist, it is around 20 pounds—baseball size.

Electron. A subatomic particle with a unit negative charge and very little mass.

Enriched material. Uranium containing a higher than normal proportion of U235.

Fast-neutron reactor. A reactor fueled with enriched material so that no moderator is needed.

Fission. Splitting of an atom into two atoms of more or less equal weight.

Fission chain reaction. A fissionable atom splits when it absorbs a neutron. In splitting it throws out more neutrons which cause further splitting in a continuing or increasing chain.

Fissionable material. A kind of atom which will split when it absorbs a slowly moving neutron. Those known today are uranium 233, uranium 235, and plutonium.

Fission product. Atoms formed by the broken pieces of a split atom. Usually very radioactive.

Moderator. Material built into a reactor to slow the neutrons emitted in fission. Slow neutrons are less likely to be captured by U238, so more neutrons are available to sustain the chain reaction in U235. Common moderators are graphite beryllium, heavy hydrogen.

Neutron. A heavy subatomic particle with no electric charge.

Pile. Same as a reactor. Most often used for a slow-neutron reactor in which slugs of uranium are surrounded by a moderator.

Plutonium. An artificial heavy element, fissionable, formed when an atom of U238 is struck by a neutron.

Proton. A heavy subatomic particle with weight close to a neutron and electric charge equal to an electron but positive.

Radioactivity. Emission of energy by an atom—either as high-speed particles or as energy waves.

Radio-isotope. An unstable isotope which shifts itself to stable form by spitting out either particles of its nucleus, electrons, or energy waves.

Reactor. Any device in which a fission chain reaction can be maintained.

Shielding. Heavy material, often concrete or lead, which is placed around a reactor or radioactive material to absorb the dangerous radiation.

Thorium. One of the heavy elements. When struck by a neutron it is transmuted into uranium 233, which is fissionable.

Transmutation. Artificial conversion of an atom of one element into an atom of another element. Accomplished by hitting the atom with a subatomic particle.

Uranium. A heavy metal rather resembling lead. Heaviest of the natural elements. Commonest form contains 238 protons and neutrons. One atom in each 140 contains only 235 and is fissionable. A very rare form contains 233 and is also fissionable.

In a nation with a 2,000-year reserve of coal, such a prospect is not terribly exciting—economically speaking—to anyone outside the fuel business. Conceivably, it might change the cost factors in plant locations of some U. S. electro-process industries—moving them closer to raw materials or markets. However, the University of Chicago's Cowles Commission, which has been studying the question, thinks not.

It is considerations like these rather than technical factors which set the time scale for useful atomic energy. You can find competent technical people who are confident that on a work-it-out-as-you-go-along engineering basis they could deliver you, if you wanted it, a commercial-size, reasonably economical power plant along about 1952.

But AEC doesn't want it much. The commission is scheduling its power work to produce an economic plant sometime around 1960. Throughout the sixties it looks for steady installation of additional plants, so that by 1970 atomic energy might be supplying 20%-25% of the country's power needs.

The rest of the world, however, is not likely to be so casual about power possibilities. The Cowles Commission thinks that on the central European plain—the Balkans and western Russia—there's a combination of developed industry, fuel scarcity, and expensive transportation that would make atomic power attractive.

The coal-starved British, who have budgeted about $120-million for atom work, are believed to be stressing power development in their program.

So the first substantial power plants may well appear outside the United States.

The only nuclear reactor in existence today which is capable of delivering its energy output in usable form is the fast-neutron reaactor at Los Alamos. It is fueled with pure plutonium, employs no moderator, is essentially a controlled bomb.

This reactor delivers its energy at a fairly high, and therefore usable, temperature. It is described at Los Alamos as "a watch-charm model of a power plant." Its primary purpose is the study of bomb physics, but it is producing information which will be valuable if, as

some expect, practical power plants turn out to resemble bombs more than they do the huge Hanford piles.

The second high-temperature pile due to come in is one at Brookhaven National Laboratory on Long Island. It is now under construction, should be completed next year. This one may actually deliver a little electric power; AEC hasn't decided yet.

The Brookhaven pile is pretty much a copy of the existing pile at Oak Ridge—air-cooled, carbon moderated, fueled with natural uranium. However, it will operate at a higher power level than Oak Ridge's 1,000 kw., and its cooling air will emerge hot enough to generate steam. The limit on its temperature is the heat-resistance of the aluminum jackets which protect the uranium from corrosion.

Space is being left in the design for a heat exchanger. But any power generated won't even be enough to run blowers that force cooling air through the pile.

The first reactor that can reasonably be considered a pilot plant for power generation is the Zinn pile at the Argonne National Laboratory in Chicago. Construction work on this awaits only final AEC approval. As a matter of fact, Argonne was ready to start a year ago. This will take a year and a half to two years to build.

The Zinn pile's primary purpose will be research, but it is being designed to do a workmanlike job of getting the power out in usable form. It will be a fast-neutron reactor using concentrated fuel, will operate at a fairly high power level and at a temperature comparable to that of a modern steam plant.

Two reactors specifically designed to produce electric power are on the AEC docket, but neither is in a very active condition.

One is the Daniels pile, first projected by the Manhattan District in 1946; at that time it was scheduled for completion this year. But it has never been started; now it is doubtful whether it will ever be built.

The other straight power project is the General Electric reactor scheduled to be built at the Knolls Atomic Power Laboratory near Schenectady. No information has been furnished about this pile except that it will eventually run at a high enough power level to provide a practical demonstration of the operating problems to be expected in a commercial-size plant.

The one exception to U. S. indifference about power plants may turn out, curiously enough, to be the Air Forces. Their NEPA (Nuclear Energy for Propulsion of Aircraft) project is built on the long-jump psychology that went from a wiggle on an oscilloscope in 1939 to Hiroshima in 1945. With Fairchild Engine & Airplane Corp. as principal contractor, the object is to try to build right away an atomic power plant for an airplane.

When you remember that today's heavy bombers carry as much as 40 tons of gasoline (which a NEPA engine wouldn't need) this doesn't seem so fantastic as it might at first glance. But even so, the "respectable" atom people are pretty scornful of NEPA. They're sure the only sound route is through stationary power plants, then to ship propulsion, and eventually to aircraft.

NEPA people feel that they are ready to start building something; the question is whether it will get money and a recognized place in the atom program.

A BASIC PROBLEM

DECLASSIFICATION OF INFORMATION during the past year has clarified one fundamental question: Is nuclear fuel so scarce that atomic energy must always be regarded as a special-purpose affair to be rigidly conserved? Or is it plentiful enough to be regarded as a major resource?

Uranium itself is a fairly plentiful metal. However, only one part in 140 of it (the U235) is naturally fissionable. If that were all, atomic energy would be a rarity very soon.

But when fissionable U235 is consumed in a reactor, producing power in the process, some of the U238 is transmuted into fissionable plutonium. This increases the potential supply of fuel.

So the question comes down to this: When you burn a pound of U235, how much plutonium do you get?

Suppose you only get half a pound. Burning that half pound would produce a quarter pound, and so on. You'd end up able to use only one part in 70 of the total uranium. Still not good.

But suppose you get a pound of plutonium out for each pound of fuel burned. Then you can eventually utilize all the uranium.

And if you could get out more than a pound of plutonium, you'd have a "breeder pile" which would constantly produce extra fuel for use in other piles.

So what about breeding? Theoretically, it is possible: When a U235 atom splits, it throws out, on the average, something over 2.2 neutrons. One of these is needed to split another U235 atom and keep the chain reaction going. If another neutron is used to transmute a U238 atom into plutonium, that leaves a margin for losses—if the losses are small enough.

AEC's guarded comments indicate that in present piles the neutron losses are too great to permit breeding. But it is believed that the new piles now on the drafting boards would be efficient enough to breed fuel.

If it works out, that makes atomic energy a thousand-year resource or better. And people who like to worry about the fate of their descendants fifty generations away can take comfort from this thought: Though there is no reason to look for coal or oil there, the moon should have lots of uranium.

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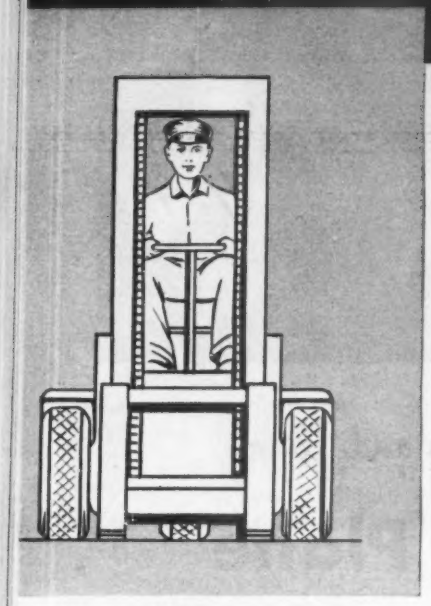

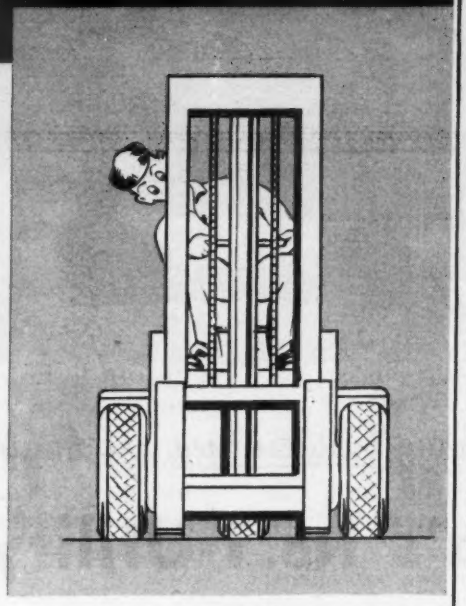

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FUEL

Natural Gas Race

Two pipeline companies are tangling before the Federal Power Commission. The stake: the juicy Northeast market.

The race to bring natural gas to the fuel-hungry Northeast has begun in earnest. Two rival pipeline companies are fighting before the Federal Power Commission for the lead. They are Texas Eastern Transmission Corp. and Transcontinental Gas Pipe Line Co.

Big obstacle to any such project is equipment shortages, especially of big steel pipe (BW—Mar.13'48,p26). This means it may be two years or more before the New York City-New England area actually gets gas piped from the Southwest.

• **Background**—In February, Transcontinental asked FPC for authority to build a 26-in., $150-million pipeline from Texas to the Eastern Seaboard. This line could serve communities in New York, New Jersey, and Pennsylvania. Transcontinental claimed it had commitments from enough utilities to buy the line's output.

But, then, Texas Eastern applied for approval of a third Big Inch line to supplement the two it got a year earlier —in the face of Transcontinental opposition (BW—Feb.22'47,p22). Texas Eastern asked FPC to refuse Transcontinental's application.

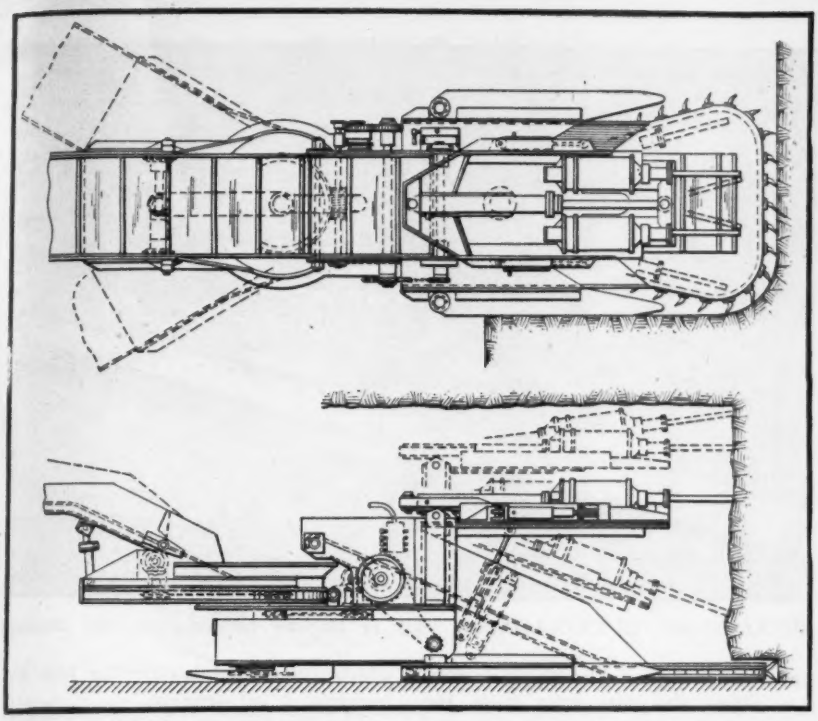
Last week FPC decided: Transcontinental has not proved that it has lined up enough natural gas to provide prospective customers on a 15-year basis. Transcontinental got six months to furnish "additional evidence."

• **First Round**—Transcontinental and Texas Eastern actually began the race more than two years ago. At that time, both newly formed organizations were bidders for the government's war-built Big Inch pipelines.

Texas Eastern won.

• **Short Stop**—Under the Natural Gas act, Texas Eastern first had to go to the Federal Power Commission for a certificate to put gas through the two tubes. It got the certificate—with a "but." FPC insisted that first priority on Inches gas be given to hard-pressed utilities in Pennsylvania, West Virginia, Western New York, Ohio, and Kentucky—the so-called Appalachian area.

Though it has contracts to serve Philadelphia eventually, Texas Eastern now delivers all the 433-million cu. ft. flowing through the Inches daily to Appalachian area distributors.



KONNERTH CUTTER-LOADER, being developed by H. C. Frick Coke Co., uses resonance to break up the coal (just as a musical note can break a glass). Upper diagram is a top view, shows (right) the blades that undercut the seam. Lower diagram is a side view, shows how the hammers that produce the resonance can be raised or lowered

For More Efficient Coal-Mining

Development of machine to cut and load coal is next step in mine-mechanization. Industry launches $250,000 study of problem.

The coal industry's current instalment of John L. Lewis trouble again brings into focus one long-time problem: how to enhance coal's competitive position among fuels in the face of rising labor costs? Mechanization is firmly established as the chief means of reducing the cost of coal mining. So the industry's problem comes down to this: Can we get significantly more out of present machine types, or develop new ones to simplify further the mining operation?

• **Research Program**—Last week the bituminous coal industry—through Bituminous Coal Research, Inc.—launched an engineering program to develop such a new machine. Seventy leading coal producers, coal-land companies, and railroads put up $250,000 to finance the program. Its ultimate objective: a single machine that will both (1) cut coal "off the solid" without using explosives, and (2) load the coal continuously onto a conveyor or into mine cars.

The idea of a machine that will cut and load coal continuously is not new. Several foreign countries—England, Germany, Russia—have developed workable variations. Several U. S. manufacturers of coal-mining machinery have been working on the problem. So far, no machine has reached the commercial stage in this country.

• **Nearly Ready**—Joy Mfg. Co., however, has a cutter-loader nearly ready for U. S. mines. One experimental unit has been operating successfully in a Colorado mine for about two years. Another was recently installed in a Pittsburgh Consolidation Coal Co. mine at Daisytown, Pa. A third is scheduled for shipment soon to an Illinois operator.

The goal in the United States is to develop machines adaptable to a wide range of coal-seam thicknesses and coal-face widths—particularly to the short-face mining that is standard in this country. Most of the European machines are designed to work on long faces—300 ft. or more.

• **Foreign Machines**—One of these is the A. B. Meco-Moore machine, now being used in England (picture, page 58). This machine requires a working height of at least 3 ft. (goal in the U. S. is 28 in.). The Meco-Moore unit uses three cutter-bars to remove the coal. One horizontal bar undercuts the coal to be removed; another overcuts it

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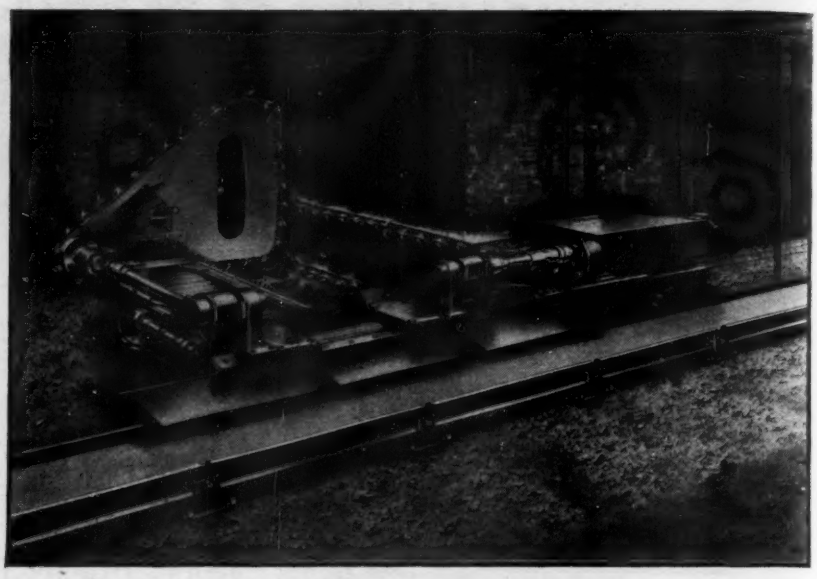


MECO-MOORE CUTTER-LOADER used in England for long-face coal mining

about 2 ft. higher. The third, vertical bar shears the coal loose from the solid at the back. A chain-conveyor loads the coal on a moving belt.

Another English machine, the Logan slab cutter, has four cutter-bars. One undercuts, one overcuts, a third shears at the back, and the fourth cuts into the coal in front of the machine at intervals of about 6 ft., to sever it.

• **Early Experiments**—Mine trials of cutter-loader machines have been going on in this country since about 1890. In that year a machine was used in an Illinois mine that cut the coal with boring-type heads and deposited it on a conveyor. In another machine, first tried in 1913, cutter bars cut the coal on the bottom and two sides, while wedge-pointed bars broke it down into a conveyor which fed it into mine cars.

These are only two of a number of types that have been tried. They all had one basic drawback in common: They were too inflexible. They had to be built for a specific operation, could not be adjusted to various seam thicknesses, often could not even turn aside from a straight-line path.

• **Flexibility Sought**—The research programs being followed by Bituminous Coal and by individual machine-makers are trying to get around this difficulty. Joy's machine does it, but Joy isn't yet telling how.

Another machine that shows promise has been patented by Karl L. Konnerth, assistant to the president of H. C. Frick Coke Co., a U. S. Steel Corp. subsidiary. It is still in the experimental stage.

Its major principles are pressure and vibration, combined with shallow undercutting (diagrams, page 57). A cutter bar makes a shallow undercut. Then the coal is broken down by two hammers which are pressed against the face by hydraulic or air pressure.

The hammers are vibrated at a rate—between 1,000 and 2,000 a minute—that will produce the necessary degree of resonance. This breaks the coal in the same way that a musical note of a certain pitch will break a thin drinking glass.

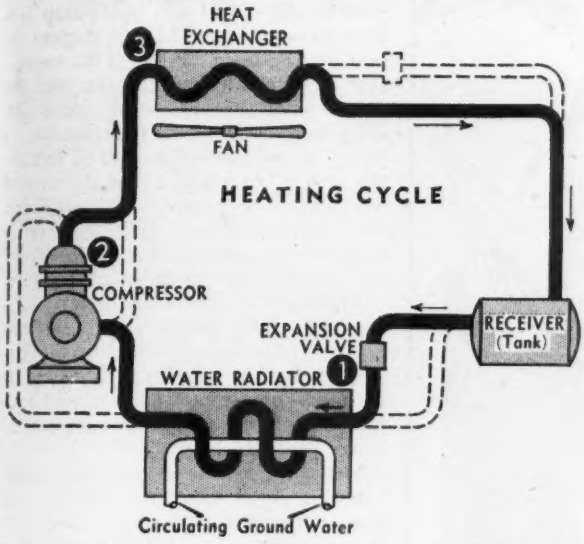
As shown in the diagram, the hammers can be raised or lowered or swung to either side. This makes it adaptable to varying face widths, and to varying coal-seam thicknesses.

• **Basic Change?**—Experiments with such machines suggest an interesting possibility for the future of U. S. coal mining. Machines now being tried are designed for short-face mining. But, particularly where the coal seam is thin, it may be that continuous mining and loading will require use of long-face mining, like that common in Europe.

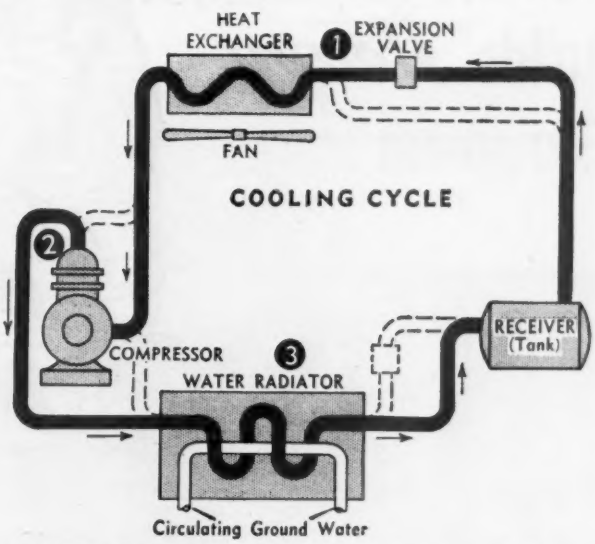
J. & L. BUYS COAL MINE

The shortage of low-volatile coal—a type of coking coal relatively free from impurities—is a big problem to steelmakers. They need low-volatile coal to make the best quality coke. To assure a supply for themselves, several companies got together last year to buy the Carter Coal Co. (BW—Dec.6'47, p21).

Now Jones & Laughlin Steel Corp. has announced that it, too, has assured itself a low-volatile coal supply. The company has bought Darr Smokeless Co., which operates a mine at Twin Branch, W. Va. This mine has been producing about 800 tons daily, but J. & L. expects that fall mechanization will more than double this output. The steel company already has a low-volatile coal mine at Mullens, W. Va.



HOW IT HEATS. (1) Circulating fluid, passing through expansion valve, changes to gas, picks up heat from water. (2) Gas is compressed, raised in temperature. (3) Gas gives up heat to house through heat exchanger, goes back to liquid.



HOW IT COOLS. (1) Flow is in reverse. Liquid expands to gas at heat exchanger, picks up heat from house. (2) Compressor raises pressure of gas. (3) Gas gives up its heat to water radiator, goes back to liquid, ready for recycling.

Heating Device Uses Heat from the Ground

Principle is similar to the electric refrigerator. Unit can be used in summer for cooling. Air is an alternate heat source.

A hundred-year-old idea—the heat pump—is getting plenty of industrial attention today. It offers a radically new way to heat and cool homes. It also figures to be a potentially good load-builder for utilities.

• **In the Field**—Several companies and research organizations are already in the field. Among the most active are Dreyer-Hanson, Los Angeles; Muncie Gear Works, Muncie, Ind.; and General Engineering & Mfg. Co., St. Louis. Others reportedly experimenting with the idea: General Electric Co.; Sturtevant Division of Westinghouse Electric Corp.; Frigidaire Division of General Motors Corp.; Airtemp Division of Chrysler Corp.; York Corp., York, Pa.

Latest entry into the field is Webber Engineering Corp., Indianapolis, which last week began shipping experimental versions of its home-heating unit to utilities in various parts of the country for field tests.

• **Like a Refrigerator**—The heat pump was first proposed by Lord Kelvin, the father of modern refrigeration. It is simple in theory: When a liquid vaporizes (changes to a gas), it absorbs heat; as the gas goes back to liquid form, it gives off heat. That's the principle on which your household refrigerator—and the heat pump—work. In the household refrigerator, gas is compressed; it expands in the evaporator (where you make the ice cubes) and picks up heat from the box. This heat is given off in the condenser and the gas goes back through the compressor again, ready for another cycle.

There's this difference between the heat pump and the refrigerator: In the ordinary refrigerator, the heat picked up from the inside of the box is thrown off aimlessly; in the heat pump it's put to definite use.

• **How It Works**—In the heat pump, the gas (usually freon) picks up its heat from one of three sources: the air, the ground, or water (left diagram, above). The gas is then compressed, passes through a heat-exchanger where it gives up its heat and becomes a liquid. The liquid goes to a tank, then passes through a valve, where it becomes a gas again, taking up new heat from air, ground, or water. The gas then travels back to the compressor, and the cycle is repeated until enough heat—as determined by a thermostat—is distributed to the house from the heat-exchanger.

The heat pump can be reversed for cooling in the summer. In such a setup, the expanding gas picks up heat from the house and transfers it to the ground, to water, or to the outside air, thus cooling the house (right diagram, above).

• **Advantages**—There are plenty of good reasons why industry is interested in the device. For one thing, the heat pump is a simple way to get both heating and cooling in a single mechanism. The only moving parts are the compressor and, when water is used as a heat source, the water pump. These can be electrically driven—hence the interest of the utilities. It is also possible to drive them by gas engine (Muncie Gear Works are experimenting with that idea right now).

As an indication of what a load-builder the device could be, Indianapolis Power & Light Co. estimates that if heat pumps were installed in all the houses costing $9,000 or more that will be built in Indianapolis in the next five years, demand would be boosted by more than 31-million kwh. a year (or 17% of the utility's present residential load).

• **Problems**—Despite the fact that some manufacturers are already selling the devices, the heat pump is not out of the woods yet. For one thing, it's expensive. (Muncie's Marvair runs from $1,750 to $2,250; Webber's is expected to sell for about $1,200 eventually—both excluding installation.) And, at present electric rates, operating costs are no lower than for most conventional heating

"Sure, MATHEWS Builds *Heavy* Equipment"

A very high percentage of Mathews engineering time is devoted to the design of heavy equipment. The development of heavy-duty Roller Conveyers, heavy chain conveyers, and special conveying machinery for handling very heavy loads is a great part of Mathews complete conveying service to industry. Because Mathews package handling systems are so prominent, the question sometimes arises as to whether or not Mathews Engineers are at work in the heavy conveying equipment field. When this occurs, there is usually an experienced plant engineer who has seen Mathews Conveyers at work under severe conditions in foundries, brass mills or steel plants, and who will remark, "Sure, Mathews builds heavy equipment." — And he's right — for whether the weight of a load is rated in pounds or tons, if it must be handled, it is a job for Mathews Engineers.

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plants, which are cheaper to buy and install.

Installation is a major problem. For instance, it might involve the digging of wells and the setting up of circulating water systems to supply a heat source.

• **Inefficient**—Right now heat-pump systems take only three to four degrees of heat from 52-deg. water. This means that large quantities of water are required when heat demands are high. Ohio Edison Co. in its experiments, is trying to increase efficiency of extraction to the point where nine degrees of heat can be extracted. This will cut down water demand. (During extreme cold, one experimental unit required 940 gal. of water an hour last winter.)

Manufacturers are facing design problems, too. Early devices were bulky and noisy. The aim is to simplify the design so that (1) less basement space is required, and (2) more efficient mechanical operation, with a minimum of noise, is possible.

• **Years Away**—Edison Electric Institute, the power industry's trade association, warns that large-scale home-heating with heat pumps is still years in the future. E.E.I. and the Assn. of Edison Illuminating Companies have set up a joint committee to study the problems involved. Right now the committee is trying to determine which of the heat sources—water, air, or the ground—is the most efficient.

The development poses many other interesting questions: Can the heat removed from freezing lockers be used to heat water? Can heat removed from a refrigerator be piped to a warming oven in the kitchen? Can the heat removed from packing houses, cold-storage plants, and the like be used to warm plant offices? Such developments won't be too far off, Webber engineers think—once the bugs are out of the home-heating and cooling device.

Dow Finds Way to Electroplate Magnesium

Engineers have long been groping for a way to electroplate magnesium commercially. But it was not until very recently that their trial-and-error effort finally neared the payoff stage. And last week, for the first time, Dow Chemical Co., a leader in these investigations, was willing to talk publicly about its latest successes.

Dow's process includes both cleaning and plating. It requires the same number of steps as the plating of aluminum, and only one or two more than needed for zinc or steel. Estimates put the cost at about 2% more than the electroplating of zinc.

• **Failures**—Some experts once felt that magnesium could never be electroplated

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DITTO SAVINGS PAY ITS COST

IN EVERY FIELD OF BUSINESS, IN EVERY INDUSTRY!

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PURCHASING
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Send for your free copy of Case History 4611 to learn how Berkshire Knitting Mills uses Ditto to the tune of a $11,000 yearly saving.

**A letter in our files, from the Scott-Foresman Company, testifies to this statement. Copy of the letter is available upon request.*

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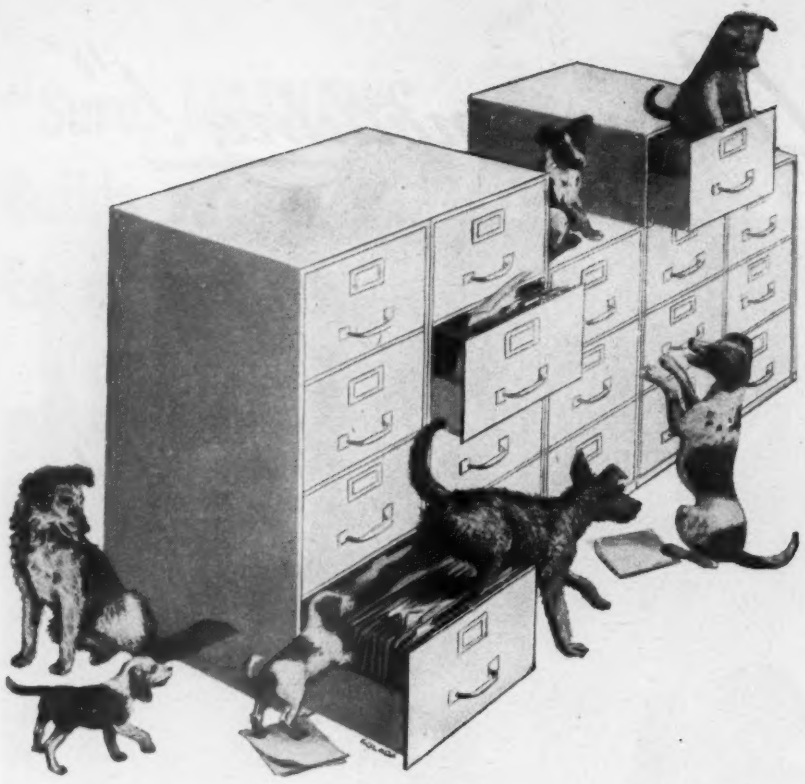


How many dogs in your order file?

Dogs in your backlog always put the bite on you when you least expect it.

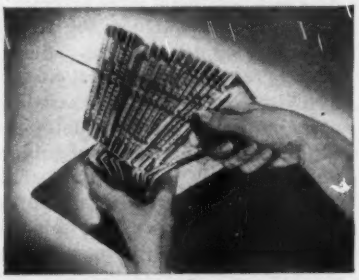
Worst of all are the mongrels that chew you where it hurts most. Like the orders from an industry, trade or territory that is most vulnerable to a slump. And the orders for your *weak* items that hobble production and hike costs of your *strong* items.

Back orders that can trip up the *continuity of your business* in the months ahead are "sleeping dogs" that you just can't afford to "let lie."

But how *can* you make them quickly accessible to analysis by product, customer, industry, territory or other category?

Keysort cards and machines put *all* the facts at your fingertips *fast* and *fresh* . . . when you need them *most*. Sales or inventory facts, cost or control facts, production or personnel facts . . . McBee makes them *easily, quickly* available.

For 40 years, McBee has been a boon to auditors, accountants and management. Why not talk over *your* problem with a McBee man?



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THE McBEE COMPANY

Sole manufacturers of KEYSORT—the marginally punched card

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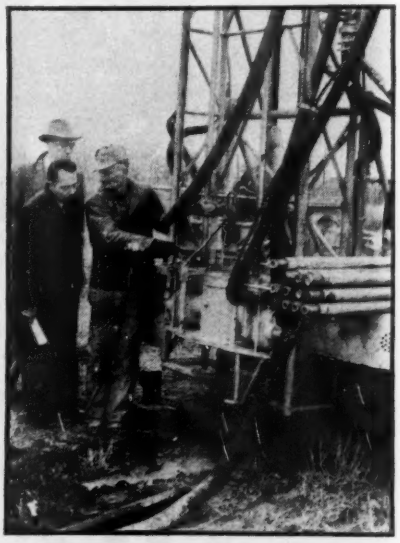
successfully. Nickelplating ate away the magnesium. And if other metals were used there was always the danger that corrosion would take place.

Dow met with failure for years. In 1941 the company prematurely announced a process that used a special nickel. It didn't attack magnesium, but it did prove too erratic for commercial use. The process worked for a while, then the bath deteriorated—and there was no way to renew it.

• **New Tack**—After the war, researchers tried a new tack. Paced by engineer Herbert K. DeLong, they developed a way of applying a film of zinc to magnesium. Once the film was in place, the parts could be plated with chromium, nickel, copper, brass, cadium, zinc, gold or silver in the usual ways.

The zinc-immersion coating is applied within three to five minutes in a bath (mainly tetrasodium pyrophosphate and zinc sulphate). The plating that goes on top sticks tightly, does not flake, makes a moisture-proof seal that stops galvanic corrosion. Chrome-plated camera cases lasted from 70 to 195 hours in salt spray before a break developed in the plate.

• **Pilot Plant**—With an eye to its earlier troubles, Dow is moving cau-



HYDRAULIC DRILL

Officials of Century Geophysical Corp., Tulsa, Okla., look over something new in oil-field testing drills. It is a "shot hole" drill which works on a hydraulic principle. (Shallow shot holes are drilled in exploring fields for oil; sticks of dynamite are exploded in them to trace, by sound echoes, underground rock formations.) Century claims that its drill is lighter than conventional rotary-type drills, does a faster job through shale. The company says that the drill can also hold its own against conventional drills in working through hard rock.

Only Dodge gives so much

VISION...

New Dodge "Pilot-House" cabs give you nearly 200 square inches more windshield area than other standard truck cabs! You get tremendously increased vision . . . in *all* directions. Windshields and windows are higher and wider. Available are new rear quarter windows that add still more to vision and safety . . . and vent wings for controlled ventilation.

COMFORT...

Comfort? Riding is believing! New and *better* weight distribution, wider tread axles and longer springs give a marvelous new "cushioned ride." "Air-O-Ride" seats give the kind of seat cushion you want—"soft," "medium," or "firm" . . . controlled by a convenient lever. Seven full inches of seat adjustment provide the right legroom for every driver. All-season comfort is yours, too, with "All-Weather Ventilation" . . . an ingenious combination of truck heater, defroster vents, vent windows, and fresh air intake. Yes, take a ride . . . for *riding* is *believing!*

1 PLENTY OF HEADROOM

2 STEERING WHEEL . . . right in the driver's lap.

3 NATURAL BACK SUPPORT . . . adjustable for maximum comfort.

4 PROPER LEG SUPPORT . . . under the knees where you need it.

5 CHAIR-HEIGHT SEATS . . . just like you have at home.

6 7-INCH SEAT ADJUSTMENT . . . with safe, convenient hand control.

7 "AIR-O-RIDE" CUSHIONS . . . adjustable to weight of driver and road conditions.

EASE OF HANDLING

You can turn these new trucks in much smaller circles—park or back up to loading docks with greater ease. This is due to a new type of steering design, with shorter wheelbases that accommodate full-size bodies. Front axles have been moved back and engines forward. This added weight on front axles gives much better weight distribution!

With all these new advantages, you get a truck that fits *your* job, that saves *you* money. That is because every unit of every Dodge truck, from engine to rear axle, is *"Job-Rated"* for economy, dependability, performance and long life. And remember . . . only Dodge builds *"Job-Rated"* trucks!

only Dodge builds "Job-Rated" trucks!

NEW DODGE *"Job-Rated"* TRUCKS

FIT THE JOB... LAST LONGER

Overhead Costs SWOLLEN?

...here's a sure way to REDUCE 'EM!

Using sanitary maintenance products which involve a needless amount of labor adds to industry's already painful cost headache.

Bring down this "cost swelling" by using West sanitation products for floors, washrooms, pest control and personnel protection.

Quick, efficient, scientifically formulated—West products save money because they conserve work-hours and manpower. Also, they aid in cutting down absences from the job by stepping up employe allegiance by providing a cleaner and healthier working atmosphere.

West maintains nearly 500 specially trained representatives from coast to coast to help you with your industrial sanitation problems. Contact one at once—you'll find him full of money-saving recommendations.

Products that Promote Sanitation

WEST DISINFECTING Company

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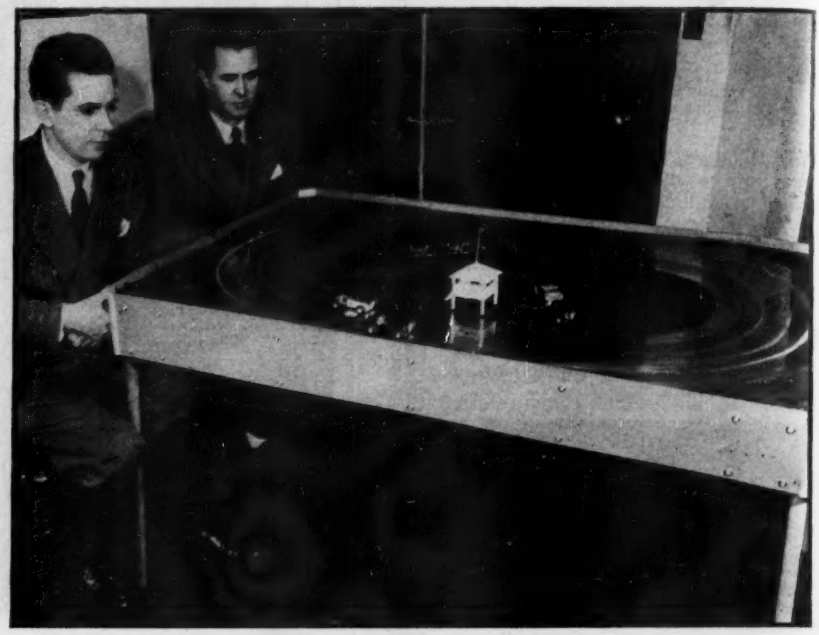
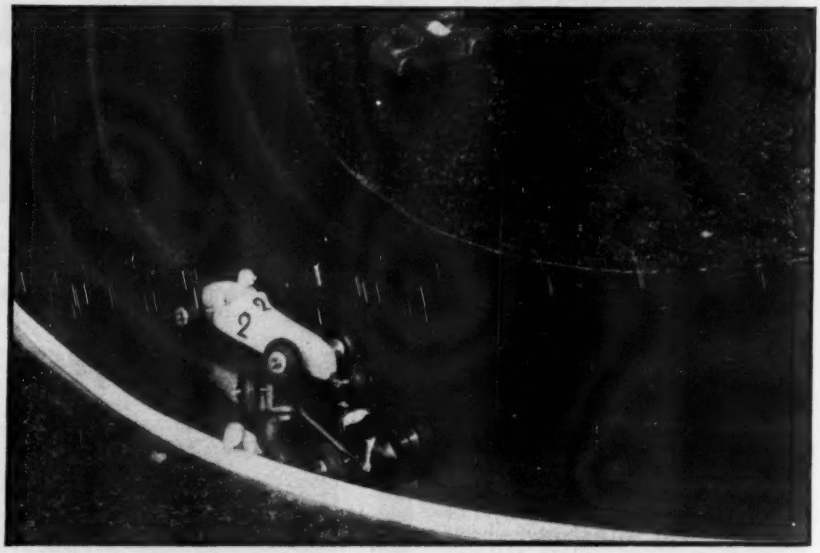
tiously with the zinc-immersion process. It has had a pilot plant in operation over six months. For the company's 50th anniversary, the plant turned out 40,000 chrome-plated medallions. And a number of other items have been run in small quantities. Furthermore, the original zinc-immersion bath is still being used and shows no signs of deterioration.



Bus Company Makes a Speedway . . .

Urban buses and midget racers make strange stablemates at Twin Coach Co., Kent, Ohio. The racers are part of company president Lou Fageol's Junior Midget Speedway game. No ordinary toy, the Speedway has a price tag of $185. But the company feels it's a sure bet to sell to clubs, taverns, and game rooms in upper-income-bracket homes.

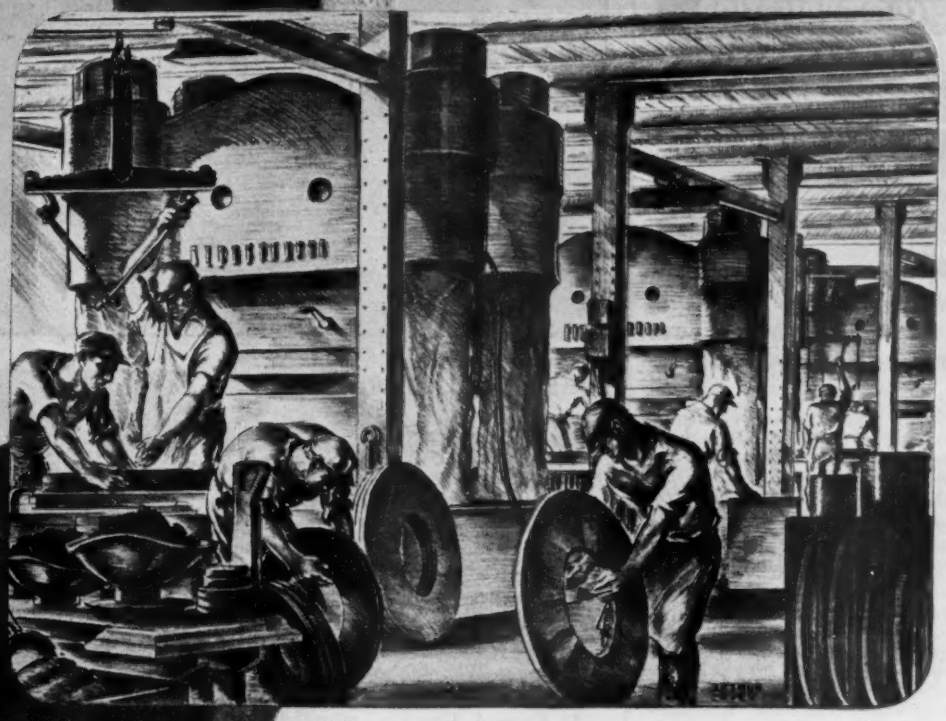


. . . For Indoor Racing Thrills

The game is mounted on a table, 32-in. high. An aluminum track runs around the 4-ft. by 7-ft. table top. The two race cars have swivel-mounted wheels, rubber tires, a 2¾-in. wheelbase. Each car is individually powered and controlled by the players with an electric throttle. They can move anywhere on the track. Beneath the speedway, permanent magnets mounted on traveling electric locomotives propel the racers—at terrific speed. If a player tries to take the curves too fast, his car cracks up realistically. For the club and tavern trade, Twin Coach expects to install a coin control on the game.

Molding by CONTROLLED STRUCTURE*

A Norton Process That Improves Grinding Wheel Performance



IN these giant hydraulic presses, skilled Norton workers† mold grinding wheels by "Controlled Structure"—an ingenious Norton process which makes possible closer control of the grinding action of a wheel and more precise duplication of that grinding action in wheel after wheel.

"Controlled Structure" is but one of the many developments of Norton research which are constantly bringing to Norton grinding wheel users better grinding at lower cost.

* A patented Norton development.

† Approximately 10% of Norton workers have a service record of 25 years or more.

NORTON COMPANY, WORCESTER 6, MASS.
(Behr-Manning, Troy, N. Y. is a Norton Division)

NORTON ABRASIVES

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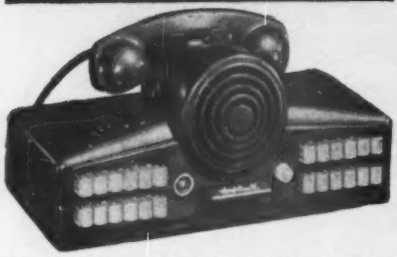
NORBIDE PRODUCTS • LABELING MACHINES • (BEHR MANNING DIVISION COATED ABRASIVES AND SHARPENING STONES)

What Every Businessman Should Know About

ELECTRONIC
AMPLICALL
Intercommunication



Read Every Word of This Quiz for the Right Answers to Your Intercommunication Problems

Q. What is AMPLICALL?

A. AMPLICALL is the *modern* electronic business tool that provides *instant* 2-way conversation *within* and *between* all departments of your business. Serves from 2 to unlimited numbers of locations.

Q. How does AMPLICALL operate?

A. Simon-simple. To call any desired station, press the proper button—and *talk*.

Q. What are AMPLICALL'S features?

A. *Privacy Handset*—for private conversations—use just like a telephone handset. *Busy Signal* indicates instantly when station being called is busy. *Plug-in Master Stations*—for quick, easy exchange or transfer of units. *"In-Person"* Realism—amazingly lifelike voice reproduction. *Handsome Styling*—an asset on any business desk.

Q. How will AMPLICALL benefit your business?

A. AMPLICALL saves time—gets action at the touch of a button. Keeps office and plant personnel on the job—no wasteful walking, waiting, memo-writing. Relieves tangled switchboards. Coordinates operations—makes every working minute count in every department of your business. Get the full details today on how AMPLICALL can benefit your business.

See Your Phone Book

For your nearest AMPLICALL specialist, look in the "Intercommunication" section of your classified directory, or write direct to the Rauland Corp., Chicago, Illinois.

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☐ Send complete details on the New AMPLICALL.

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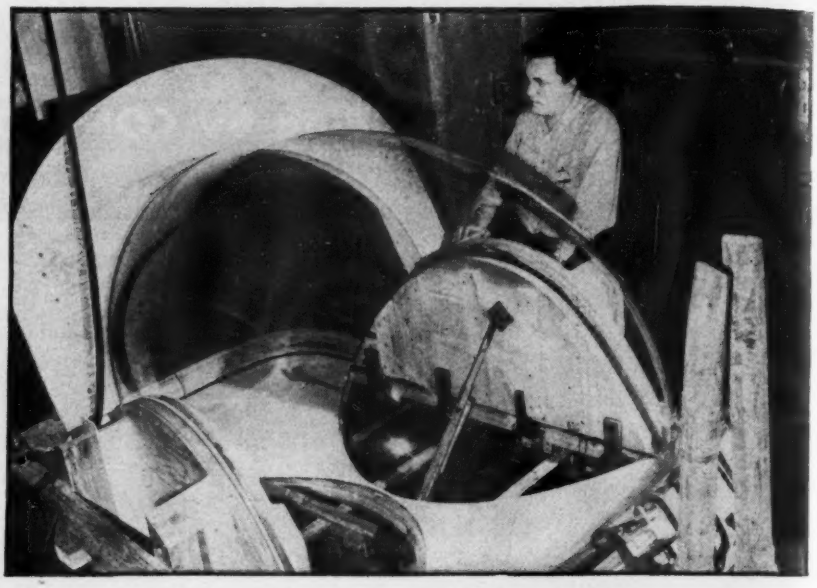
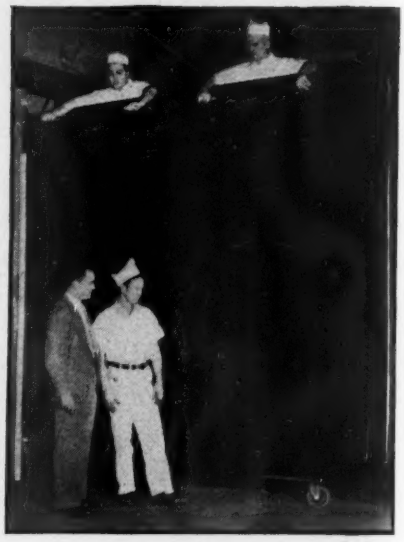


Plastic Bubbles Getting Bigger

The cabin inclosures for Bell Aircraft Corp.'s helicopters are grown-up plastic bubbles. To shape the domes, a sheet of Plexiglas is first heated then moved to a forming fixture. The sheet is laid flat on the fixture; an oval-shaped sealing ring clamps tightly around the edges (above). Air is then forced under the plastic, blowing it into a huge bulge. The finished dome has most of the optical qualities of the original sheet.

At Rohm & Haas Co., manufacturer of Plexiglas, acrylic plastic sheets are coming off the line in new record sizes. The sheets (right) measure 10 ft. by 8½ ft. They'll be used in military aircraft, in merchandising and building, and for transparent automobile tops.



Machine Trues Wheels While on Railroad Car

The job of reconditioning wheels on rolling stock is a constant headache to railroad maintenance men. Wheels must be removed from locomotives and cars before they can be trued up on lathes.

• **Not Removed**—So carriers are interested in a new machine that does the job with the wheels still on the car trucks. The machine is under development by Standard Railway Equipment Mfg. Co., Chicago.

The Standard machine is based on a milling process, using rotary cutters with cemented carbide teeth. The new machine is mounted in a pit so that cars can be run into place above it. The present model handles one pair of wheels at a time; but a newer type will take care of all four wheels on a car truck.

• **Speedier, Cheaper**—Once adjusted, the cutters always remain a fixed distance from the axle centers. This assures a perfectly rounded wheel. Driving wheels rotate the car wheels slowly as the cutters pare off excess metal. Treat and flange are trued at the same time.

Company officials say the machine can recondition wheels in 20 minutes—as against four hours now.

Four of the new machines are expected to be in Chicago railroad repair shops in the next six months.

• **New Orders**—Standard increased its order backlog $5-million in the first two months of 1948—probably as a result of its new development. At the end of 1947, the backlog was $16.8-million.

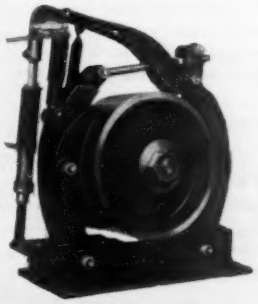
R. A. Williams, former vice-president in charge of sales for American Car & Foundry Co., has replaced as president Arthur A. Frank, now chairman of the board.

LONG ON POWER...BUT SHORT ON CONTROL

In this case, the Great Elmo could use a little more of that good old precision control to make his act more amazing—and less hazardous.

We might point out that there's a great likeness between Elmo and some bridge cranes we've seen—plenty powerful but with not quite enough control to make their operations completely non-hazardous.

In such instances, Wagner Industrial Hydraulic Brakes are recommended to give precision control stops as accurate and easy as braking an automobile—and just as safe.



Wagner Hydraulic Braking Systems reflect the sound engineering and excellence of manufacture which have been characteristic of Wagner products for 56 years.

Should you need hydraulic bridge brakes, or any other products made by Wagner, consult the nearest of our 29 branch offices or write to Wagner Electric Corporation, 6460 Plymouth Ave., St. Louis 14, Mo., U. S. A.

Wagner Electric Corporation

ELECTRIC MOTORS • TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE PRODUCTS

WI 48-1

UNNECESSARY WORK!

Yet his routine calls for it — two or three hours every day.

You see him posting from separate accounting ledgers to a composite report. Following this he must double-check for mistakes.

You can now call this "unnecessary and expensive work"! For a new, simple technique allows you to transpose whole columns of figures in seconds—without lifting a pen, without one error in transcription.

Simplifies accounting, all office work.

Manual transcription — on all jobs — is eliminated as easily as this: *Keep your records, reports, or other information on ordinary translucent paper.*

When this is done, the complete original (or any part of it) can be duplicated — without photography — in the new Ozalid Streamliner, especially designed for office use. Besides, each Ozalid print is produced in 25 seconds . . . is a positive copy . . . same size as your original . . . and costs only 1½ cents per 8½ x 11-inch copy.

116 job-by-job savings are listed in "The Simplest Business System." Write today for your free copy.

OZALID DEPT. No. 73

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Gentlemen: Please send free copy of "The Simplest Business System" . . . listing job-by-job savings.

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Ozalid in Canada
Hughes Owens Co., Ltd., Montreal

New Clutch

Iron particles suspended in oil between two magnetized plates make clutch operate smoothly, without grabbing.

An electromagnetic clutch last week was drawing industrial designers to Washington. At the National Bureau of Standards, they looked into its application for industrial use—and came away optimistic.

• **New Principle**—The clutch is based on a new principle—the discovery that magnetic fields can control the frictional forces between solid surfaces and certain types of fluid media. Called the magnetic fluid clutch, it was invented by a government scientist, Russian-born Jacob Rabinow. He has more than 40 government-patented inventions to his credit.

In explaining the invention, Rabinow pointed out that the simplest magnetic fluid clutch is made up of three elements: (1) a driving shaft with a plate at its end; (2) a driven shaft and plate; and (3) literally millions of fine iron particles, suspended in oil, packed between the inner surfaces of the two plates. These particles in oil are the only connection between the driving and driven elements of the system.

• **How It Works**—This, according to Rabinow, is applied to clutch operation in the following manner: The space between two parallel magnetic plates is filled with finely divided magnetic particles—such as iron dust. When a magnetic field is established between the two plates, the magnetic particles form chains which bind the two plates together as tightly as if they were held together with spring clamps.

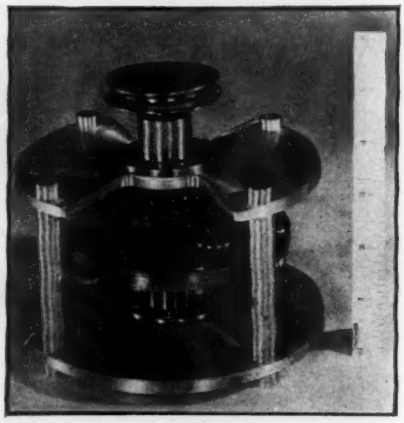
The new clutch operates smoothly, with no "chatter" like that found in the ordinary dry-friction clutch. The locking force is practically constant, and the clutch never grabs, regardless of speed of the plates. A major advantage of the clutch is that wear is practically non-existent because the working surfaces are covered with oil.

• **Possible Uses**—Although the obvious application of the clutch is in the automotive field, NBS thinks it has wide industrial possibilities: In automatic control of machinery, in other fields where ease of control and stability from low to very high speed are important. The new principle also is said to be adaptable to brake designs.

Several potential users, including a telephone company and airplane manufacturers, have sent engineers to examine test models at the bureau.

• **Public Rights**—The inventor has assigned all patent rights to the U. S. government. This means that anyone can manufacture it or incorporate it in any units by obtaining written permission from the government.

THE PRINCIPLE: Magnetized iron and oil mixture solidifies, sticks to small permanent magnet in demonstration



THE RESULT: An electromagnetic fluid clutch made into a test model

P. S.

Greyhound Corp.'s new 50-passenger, two-level bus has a crash-proof gas tank mounted in front. The tank, a development of Firestone Tire & Rubber Co., is patterned after the self-sealing fuel cells used on combat aircraft.

Fire-resistant wood has solved a construction headache at the Joseph Horne Co.'s Pittsburgh department store. The problem: how to raise part of the second floor 16 in. without increasing weight on structural supports. Using yellow pine lumber chemically treated by Koppers Co., Inc., the store was able to build the new floor with a total weight less than that of the materials removed from the old level.

They're making Mayonnaise in a bullet factory now

Yes—and cane-bottom chairs in ordnance plants, farm implements ir tank arsenals

YOU MAY EASILY ADAPT AVAILABLE SURPLUS PROPERTIES TO YOUR NEEDS

Hundreds of industrial executives and proprietors of smaller businesses have already solved their plant relocation or expansion problems by purchase or lease of Government-owned properties.

There still are hundreds more of good, usable, strategically-located properties available for you to bid on now. Small-town plants in the South, big-city establishments in the Midwest, land and buildings on Atlantic, Pacific and Gulf coasts.

You can forget what these plants were originally designed and built to produce, in most cases. They can be readily and economically adapted to almost any kind of general manufacturing—usually with minimum structural changes.

Send for your copy of the new Plantfinder. Consider the advantages of the many properties it lists and describes. Then phone, wire or write our nearest Field Office for further information—or for an appointment to inspect facilities that may meet your requirements.

NEW PLANTFINDER—FREE . . . Describes immediately available properties—indexed, cross-indexed for your convenience. Write for free copy—to the address listed below, on your company letterhead, please.

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MODERNIZING THE TRADITION . . .

JOHNSON
&
JOHNSON
and
AMERICAN FELT

Felt was accidentally discovered, according to legend, when a monk used wool to ease the soles of a new pair of sandals. It is this ancient tradition that is reflected in the sandaled foot that is part of the American Felt Company trade mark. Therefore, it is particularly appropriate that Johnson & Johnson, the famous manufacturers of professional and home medical supplies, should buy surgical felts from American Felt, for the manufacture of corn and bunion pads and other products for the health and comfort of the nation.

Surgical felts are special types, made to customer specifications, which in turn are based upon uses. Most surgical felts are used as cushions. Hence resiliency is vitally important. These felts are so made as to give comfortably under pressure, spring back when pressure is removed. The material also has the ability to mould itself to body contours. Often important is protection from shock and from extremes of temperatures.

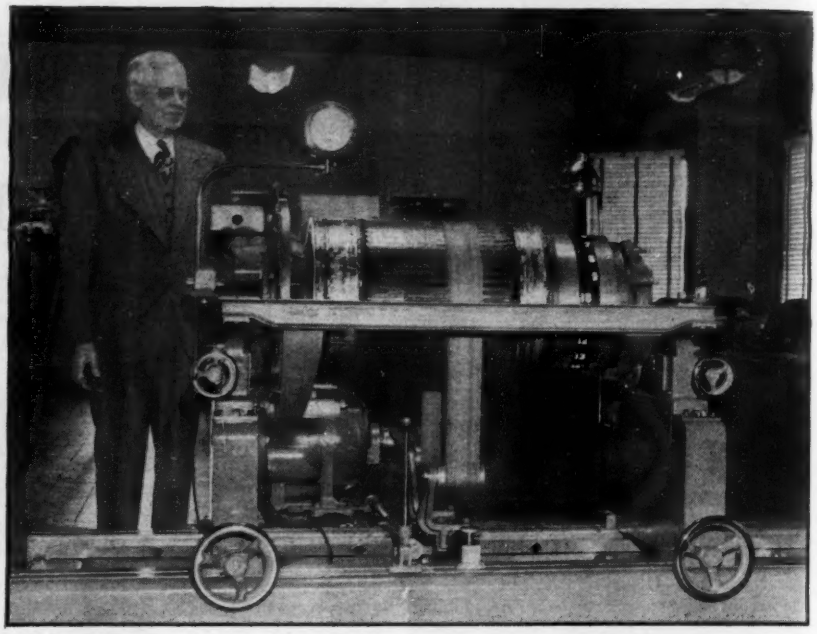
Many types of felt, other than surgical, are made available by American Felt, which supplies felt to manufacturers of products as diverse as shoes and ball bearings, automobiles and pianos. Felt is made with the exact qualities required for sealing, wicking, wiping, polishing, vibration isolation, filtering, sound absorbing, thermal insulation, shock absorbing, cushioning, dampening, padding, packaging, surfacing, frictional uses. Manufacture is under exact engineering control, and characteristics are so standardized that felts can be specified as closely as any other materials. Tell us what you manufacture—felt may help you make it or improve it. Write for list of 15 Technical Data Sheets.

American Felt Company
TRADE MARK

GENERAL OFFICES: GLENVILLE, CONN.

Engineering and Research Laboratories: Glenville, Conn. • PLANTS: Glenville, Conn.; Franklin, Mass.; Newburgh, N. Y.; Detroit, Mich. • SALES OFFICES: New York, Boston, Chicago, Detroit, Cleveland, Rochester, Philadelphia, St. Louis, Atlanta, Dallas, San Francisco, Los Angeles, Portland, Seattle

NEW PRODUCTS



Big Balancer

Balance has a big part in the efficient working of any machine. Without it you get vibration that may mean damage to equipment and parts. To spot specific points of unbalance in motors, generators, and driving wheels, Weaver Mfg. Co., Springfield, Ill., has developed a dynamic balancing machine. It tests rotating parts weighing up to three tons.

The rotating part is first mounted on the machine; each critical section is numbered. Corresponding numbers are marked on the mechanism of the balancing machine. When the part is rotated, a vibration pickup device pinpoints the vibration by lighting up the number which corresponds to the unbalanced section. The degree of unbalance is then registered on a meter. The amount of weight that must be added or subtracted to restore balance is also indicated.

• *Availability: 90 days.*

All-Weather Lubricant

When the mercury is down below zero or soaring under a summer sun, heavy equipment operators can usually count on a batch of lubricating problems. The D-A Lubricant Co., Inc., 1311 W. 29th St., Indianapolis, thinks it can make life a little easier with its new open-gear lubricant. The company says the product won't become stiff in cold weather, will keep its body in extreme heat.

The lubricant can be applied without being heated. It has a melting point above 300 F, is made in summer and winter grades. According to the maker, there's no chance of its flying off the gears if it has been applied properly.

• *Availability: immediate.*

Easy-Carry Tripod

A lightweight (2¾-lb.) camera tripod is made with special sheet-steel strips by W. K. Mfg. Co., 325 W. Vine St., Milwaukee.

The tripod starts out from three 5-in. long stubs. Expanded, the stubs make 6 ft. of tripod leg. The thin coiled steel (.005 in. thick) tapers to a rubber tipped base. Each leg has 12 ft. of stainless steel strip with a tensile strength of 200,000 p.s.i.

Closed dimensions of the tripod are 3⅛ in. wide, 5¾ in. long, 1⅞ in. thick.

• *Availability: 30 days.*

Quick Computer

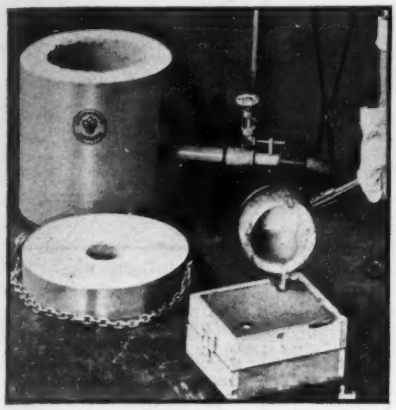
An input-output rate of 10,000 digits a second is possible in a new electronic computer. It is to be manufactured for industry by Eckert-Mauchly Computer Corp., 1215 Walnut St., Philadelphia 7. The machine, called the Univac, has a mercury "memory" (or register) that holds as many as 1,000 12-digit numbers. Data and instructions put into this "memory" can be picked out immediately by the machine for use in its computations.

Ribbons of metal tape—a few thousandths of an inch thick and about ½ in. wide—are used in the machine in place of punched paper tape or cards. The tapes can be erased to rearrange or alter data or to clean them for re-use. Type-

writer-like recorders put the data—figures, dates, names, and instructions—on the tape in groups of small dots to represent numbers and letters. The Univac then reads the tape, carrying out its instructions. After the work is finished, the results appear on another magnetic tape. This runs through an automatic printing machine to make a final printed page.

Company engineers say there is no limit to the sequences of operations that the computer will handle. Any set that can be written down can be automatically carried through.

• *Availability: 15 months.*



Pint-Size Foundry

Is your home workshop already bulging with equipment? Even if it is, Sawyer Bailey Corp., 785 Hertel Ave., Buffalo 7, thinks you'll want to make room for its Foundry Junior. The device is a small melting furnace that comes complete with everything you need to make sand-mold and plaster-mold nonferrous castings. The unit includes crucibles, tongs, crucible holder, skimming and stirring rods, asbestos gloves, and goggles. The molding equipment consists of a special-grade foundry sand, flask, riddle, and rammer.

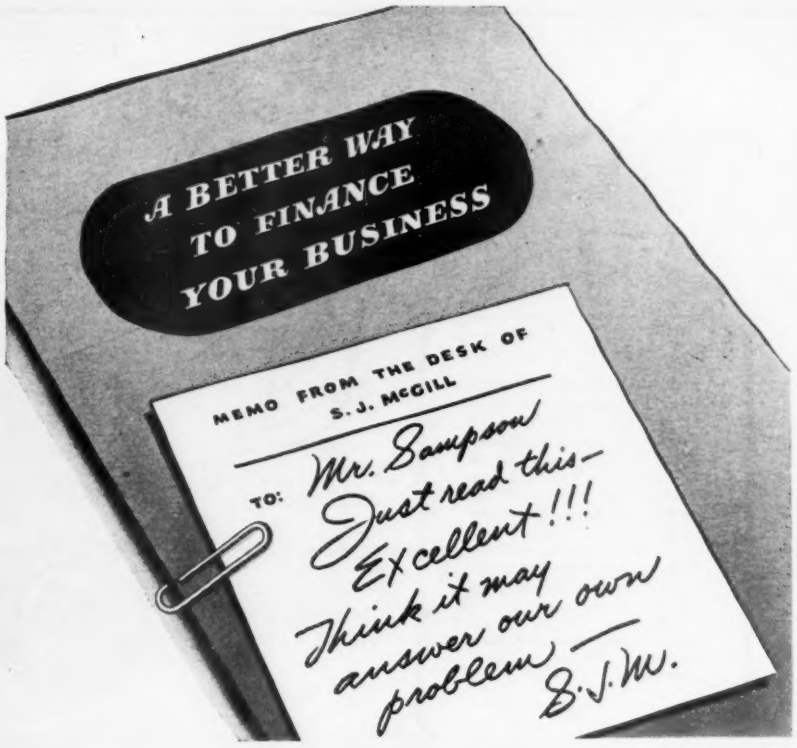
The furnace shell is welded steel lined with a refractory. Sawyer Bailey says the unit will work at temperatures up to 2,400 F. Manufactured or natural gas, or any bottled gas, can be used as fuel at pressures normally supplied for home cooking. A motor-driven blower or a household vacuum cleaner will supply sufficient pressure-air.

The furnace holds crucibles with a capacity of 10 lb. of aluminum, 34 lb. of brass or bronze. Gas consumption is about 2 cu. ft. per min.

• *Availability: immediate.*

Self-Cleaning Cleaner

A self-cleaning industrial vacuum cleaner, is a development of Continental Car-Na-Var Corp., Brazil, Ind. The machine, called the Eject-O-Vac,


A BETTER WAY TO FINANCE YOUR BUSINESS
MEMO FROM THE DESK OF S. J. McGILL
TO: Mr. Sampson
Just read this—
Excellent!!!
Think it may answer our own problem
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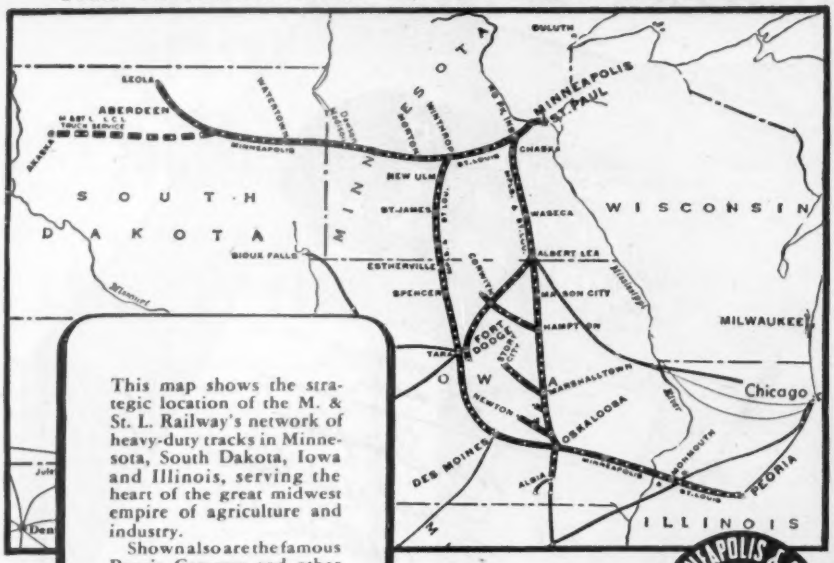
How to Get More Operating Cash *Quickly at Low Cost*

IF MORE operating cash would help your business make more progress . . . expand more rapidly . . . increase profits . . . you'll want to know more about our liberal, low-cost Commercial Financing Plan. Manufacturers and wholesalers throughout the country are discovering the advantages of our plan . . . not available under commercial time loans. Learn how little money costs, how much more you can get, how long you may use it . . . in our 32-page book, "A Better Way to Finance Your Business." Phone or write the nearest Commercial Credit Corporation office listed below.

COMMERCIAL FINANCING DIVISIONS: Baltimore 2 • New York 17 • Chicago 6 • Los Angeles 14 • San Francisco 6 • Portland 5, Ore. . . . *and other offices in more than 300 cities of the United States and Canada.*

THE MINNEAPOLIS & ST. LOUIS RAILWAY



This map shows the strategic location of the M. & St. L. Railway's network of heavy-duty tracks in Minnesota, South Dakota, Iowa and Illinois, serving the heart of the great midwest empire of agriculture and industry.

Shown also are the famous Peoria Gateway and other important connecting-line junctions, through which the M. & St. L., a modern efficient freight carrier, speeds midwest and transcontinental traffic.

TRAFFIC OFFICES IN 36 KEY CITIES

THE MINNEAPOLIS & ST. LOUIS RAILWAY CO. — THE PEORIA GATEWAY

The **Minneapolis & St. Louis** *Railway*

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"More than Paper"

MOSINEE means scientifically controlled materials that provide various functional and economic advantages in chemical, electrical and physical properties for a wide variety of products.

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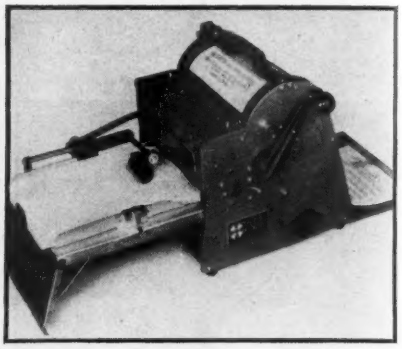
"Essential Paper Manufacturers"

has a water trap that catches and saturates dirt and dust in a 15-gal. tank. To empty the tank, a bucket of clean water is sucked in through the intake hose. A lever is then reversed and the dirty contents are forced out through the same hose into a bucket or sink.

Water from the floor can be picked up and disposed of in the same way. Enough moisture to keep the water trap working is automatically retained.

• *Availability: May 10.*



Portable Duplicator

A lightweight (28½ lb.) spirit duplicating machine that takes up less than a cubic foot of space is made by Copy-Plus, Inc., 2817 W. Carmen Ave., Milwaukee 9. The machine is built with all parts attached; no feed or receptacle trays have to be screwed on or dismounted. For carrying, the trays collapse against the side of the machine or slide inside. Other features: a roller drum that prints around its entire surface; an internal fluid tank; a push-button clamp for changing printing rolls.

• *Availability: immediate.*

Lamp and Lens

Precision work in making tools and dies takes good light, sharp magnification. L & R Mfg. Co., 577 Elm St., Arlington, N. J., says it fills the two needs with its Electric-Loupe (a loupe is the small magnifying glass used by jewelers). The device has a lens with a 2-in. focal length, plus a small electric light. The unit comes complete with a plastic headband, wire and transformer. The transformer plugs into 110-v. outlet, reduces the current to 7½ v. for the light.

• *Availability: immediate.*

Standby Light

An emergency light that goes on automatically when the regular current fails is distributed by Electric Cord Co., 30 Church St., New York 7. The Minuteman light has two lamp heads; each head puts out about 100 w. and

lights an area of close to 10,000 sq. ft.

The unit works without special wiring, plugs into any outlet in the lighting circuit. When the current cuts out, it lights up. As soon as normal power is restored, the lamps go out and a built-in charger builds up the battery for the next emergency.

• *Availability: immediate.*

Wheel Tester

Balancing auto wheels can be fast and accurate with a new static wheel-balancer developed by H. J. Steel Machine Co., 710 W. National Ave., Milwaukee.

A bronze plate, bored to take hub bolts of any car, is mounted on ball bearings. The car wheel is bolted on the plate and is spun until the heaviest section is the lowest. By doing the balancing statically from the bolt circle rather than from the center hole of the wheel (which may be worn), a more accurate job is done, the company states.

The device is 21 in. high, weighs 12 lb. A pin on the testing stand can be set to touch the rim of the wheel. As the wheel spins, the pin determines whether the rim is out of line.

• *Availability: immediate.*

P.S.

An oil-tight pilot light for machine tools is made by Square D Co., 4041 N. Richards St., Milwaukee 12. It's intended for use where cutting oils and coolants may cause a general-purpose lamp to fail.

Semi-insulated trailers for moving perishables have been announced by American Bantam Car Co., Butler, Pa. The trailers are made in all standard sizes. Most models have galvanized subfloors; many are equipped with units for wet ice.

A small mailing gadget, run by hand, moistens and seals envelopes in one stroke. It's called the Magic Mailer. Haldon Mfg. Co., Inc., 837 N. La Cienega Blvd., Los Angeles 46, is the maker.

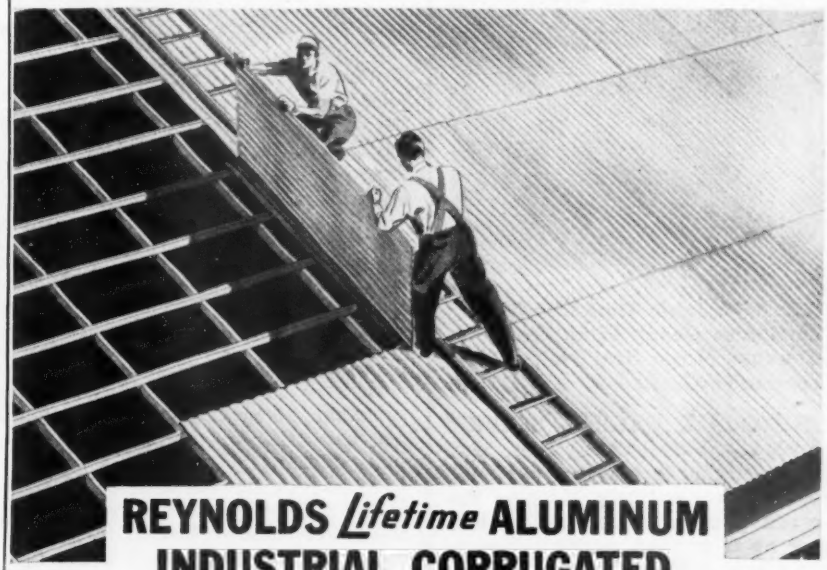
A wipe-on auto finish is said to dry to a high luster without streaks in two hours. Called Kote-A-Kar, it's made in eight colors by Plasti-Kote, Inc., Cleveland.

A lawn sprinkler that sprays in a square lets you water the farthest corners of your lawn without wasting water on walks or driveways. Valentine Welder & Mfg. Co., 7310 Woodward Ave., Detroit, the maker, calls it the Silver Dome.

A combine manufactured by Wood Bros., Inc., Des Moines, cuts, threshes, separates, and cleans. It has a full 6-ft. cut, an independent 4-cylinder, 20-hp. engine. The machine will handle more than 100 types of crops.

What you've wanted in Roofing and Siding...

Available now!



REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

Strong, yet so light it saves on both installation and framing costs, rust-proof, requiring no painting, no maintenance... highly resistant to corrosive industrial fumes... a metal barrier against fire! That's what you get with aluminum... *plus* the unique quality of reflecting up to 95% of radiant heat, keeping interiors cooler in summer, warmer in winter. Even your interior lighting is improved, if the aluminum surface is left exposed.

That's what you've wanted! Now Reynolds offers Industrial Corrugated in quantity production, for immediate delivery.

SPECIFICATIONS: These *Lifetime* sheets are .032" thick (22 gauge, U.S. Std.), corrugated to ⅞" depth, 2.67" crown to crown, in widths covering 32", lengths from 5 to 12 feet.

Aluminum strap stock, for easy purlin attachment, also available, together with complete accessories and filler blocks. See your supplier. Literature on request. Reynolds Metals Company, Building Products Division, Louisville 1, Ky.

For longer life and cooler interiors

REYNOLDS EMBOSSED ALUMINUM BUILT-UP ROOFING

.004" embossed aluminum used in place of felt for 2- and 3-ply new roofs and for re-caps. Seals out air, light, moisture, preserves life of asphalt, adds years of service, takes off the summer sun load. Saves 400 to 500 lbs. roof load per square compared with slag or gravel dressed roofs. Consult your roofer or write Reynolds.

For a complete multi-purpose building quickly assembled...

REYNOLDS ALUMI-DROME

Standard all-aluminum 36' by 60', can be increased or decreased by 6' lengths. End sections available in nine designs. Simple, bolted assembly... sheets unpunctured, held to frame by patented hat-shaped aluminum channels. Write for literature.

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS METALS

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

REYNOLDS PIONEERING MADE ALUMINUM COMPETITIVE . . . TAKE ADVANTAGE OF IT!

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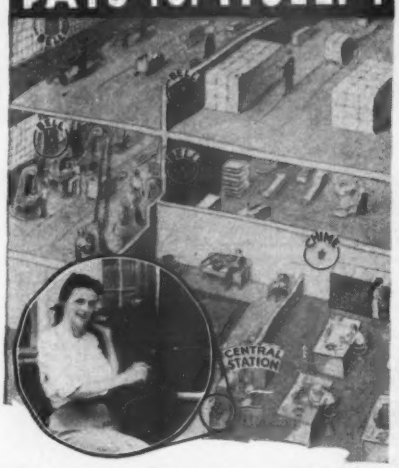
PAYS for ITSELF !



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- Controls Waste Rest Period Time
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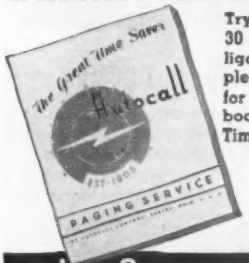
AUTOCALL PAGING SERVICE provides these vital time and money saving factors for your business by immediately locating the person you want, and telling him why he is wanted, without disturbing others at work.

Regardless of their location Autocall signals reach the persons sought: maintenance men in cases of emergency; supervisors when production lines stop; management for conferences, etc. No productive time lost. Phone lines kept clear.

Autocall Paging Systems also provide automatic signals for starting and stopping work; for rest periods, calling watchmen, and signalling the location of a fire or water flow when used with Fire or Sprinkler Alarm Systems. Little or no maintenance required.

More than 15,000 Autocall Systems in use, - many after 38 years of service, - offer ample testimony of Autocall's value and sturdiness.



Try this service for 30 days without obligation. For complete details send for the illustrated booklet, "The Great Time Saver".

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MARKETING

Auto Demand Firms Up Again

War scare and spring weather start customers calling for new cars as loudly as they did two years ago. It will mean longer waits for delivery. Used-car prices, sales also go up.

Automobile demand, which showed faint signs of tapering earlier this year, has hardened—it's stronger now than at any time since the end of the war. Two factors have customers calling for cars as loudly as they did two years ago:

(1) The fear of war, and the desire to be equipped for it with a new auto.

(2) The arrival of spring after a long, hard winter.

• **Same Story**—The effect of the new demand is the same as before: Delivery promises grow longer; trade-in allowances grow shorter; used-car prices are stiffening. Pressure by auto factories on materials suppliers—particularly steel mills—is greater.

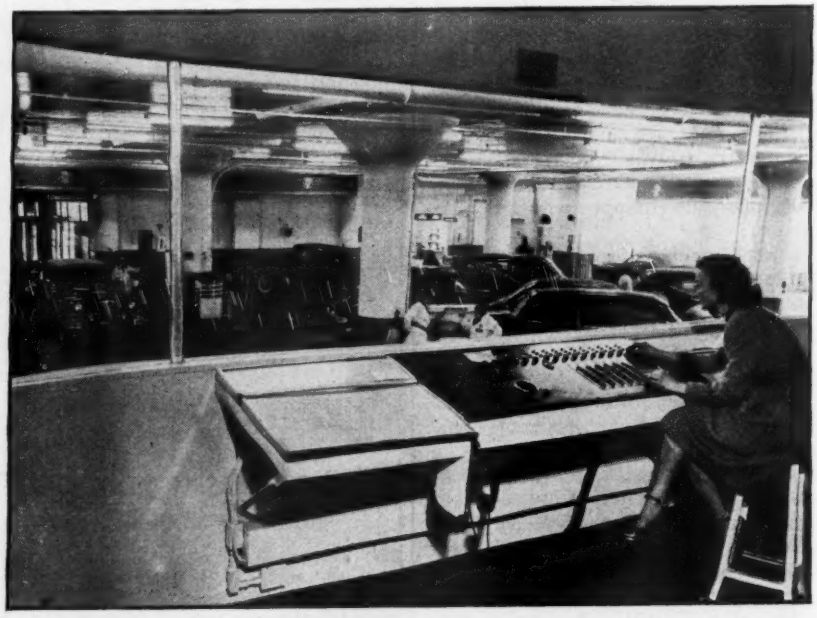
Aside from the war scare and warm weather, there's another factor behind the recent demand: Many drivers who got a car in 1946 are now ready for another. Last year they stayed away from the showrooms.

But this year, many are back in line. And their lure to the dealer is compelling—a recent model trade-in, on which the dealer has a chance to make a juicy profit.

• **Used Cars Firmer**—Along Livernois Ave. in Detroit, thermometer of the used car market, activity has gone up in the past fortnight. Local buyers have speeded up purchases. Opinion is that prices have advanced 5% or so since late March.

In addition, out-of-town buyers have been arriving for the first time since the second-hand market began to slacken late last fall. A contingent from the farm belt came to Detroit early this month and reported that business was good since the seasonal thaws began. They took enough cars back with them to relieve part of Detroit's glut of the last few months.

But used-car dealers still are not com-



Control Tower for a Service Station

In this New York City filling station a push-button panel in an airport-like control tower keeps service lines unclogged and humming. The tower's operator controls every activity on all five of the station's floors. One push button opens the street door, others guide the car into the correct service lane by lights. Intercom systems keep the operator in touch with servicemen over the building. Packard Motor Car Co. operates the station.

Balance in the Air

means money in the pocket for

Celanese Corporation

or neighborhood dress shop . . .

or you. Why should you—like the manufacturer of famous Celanese yarn and other business people who want the *best* in air conditioning—expect the greatest comfort, lowest-cost operation, longest life from *Worthington* equipment?

One simple answer: *balance in the air.* Balanced temperature *and* humidity. Balanced system—all the interrelated machinery made by the same *one* manufacturer to the same standards.* Balance in *each* piece of equipment—for smoother, quieter running during a long, trouble-free life.

50 years of air conditioning experience . . . the most *complete* line of air conditioning and refrigeration machinery . . . and an enviable network of capable air conditioning distributors — explain why *there's more worth in* Worthington.

Call your local Worthington distributor listed in Classified Telephone Book. Worthington Pump and Machinery Corporation, Air Conditioning and Refrigeration Division, Harrison, N. J.

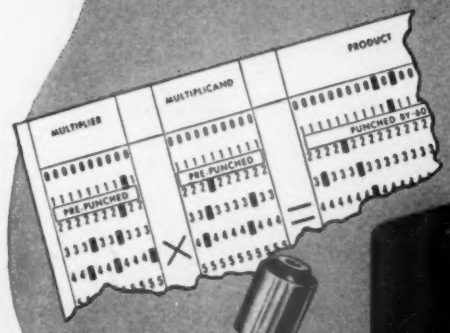
**Worthington makes more of the vital innards — compressors, condensers, engines, turbines, pumps—than any other one manufacturer.*

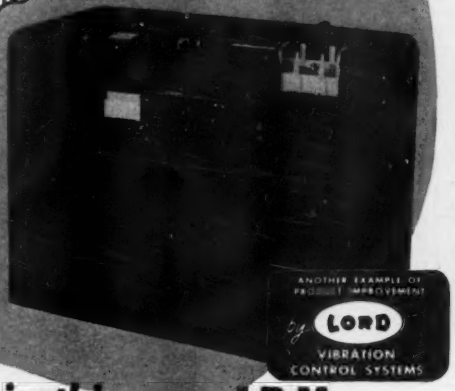
WORTHINGTON

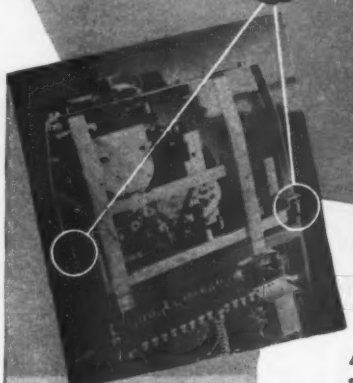
AIR CONDITIONING AND REFRIGERATION

a LORD VIBRATION CONTROL SYSTEM

- Protects Delicate Mechanism
- Lowers Servicing Costs
- Reduces Worker Fatigue







in this new IBM CALCULATING PUNCH

A marvel of inventive ingenuity that multiplies two ten-figure numbers and gives you the twenty-figure product in less time than it takes to tell it; that adds, subtracts, and divides with the same ease—that's the new IBM Calculating Punch.

The mechanism is supported and protected by four standard Lord Tube Form Mountings. They serve to isolate the vertical vibration caused by the punching mechanism and other moving parts. The life of the machine is prolonged; service calls are reduced to a minimum; and operators and neighboring workers are spared the nervous fatigue caused by uncontrolled vibration.

Whether your product is designed for precise recordings, high speed production, or heavy duty service, its performance can be improved, its output increased, its life extended, through a built-in Lord Engineered Vibration Control System.

Various Bulletins available on Vibration Control Mountings, Flexible Couplings and Bonded Rubber Products. For applications providing vibration isolation regardless of direction of disturbing forces, Bulletin No. 106; for applications isolating vibration but not subject to intense shock, Bulletin No. 104; for applications involving transient shock loads in addition to vibration, Bulletin No. 103; Flexible Couplings, Bulletin No. 200-C.

If you make Calculating Punches

or

Residential Stokers
Blowers
Household Appliances
Record Changers
Generator Sets
Business Machines
Projectors
Air Compressors
Pumping Equipment
Vending Machines
Milking Machines
Motor Scooters
Trucks, Tractors
Internal Combustion Engines
Industrial Trucks
Air Conditioning Equipment
Aircraft
Aircraft Radio, Etc.

SPECIFY THE LORD VIBRATION CONTROL SYSTEM IN YOUR PRODUCT AND INCREASE YOUR PRODUCT SALES.

MAKE GOOD PRODUCTS BETTER
with Vibration Control

LORD

LORD MANUFACTURING COMPANY • ERIE, PA.
Field Offices: Detroit • Chicago • New York • Washington, D.C. Providence, R.I. • Burbank, Cal. • Philadelphia, Pa.
Canadian Representative: Railway & Power Engineering Corp., Ltd.

pletely sure that the seasonal upturn will be greater than in past years. They admit, however, that war scares might slow up sales to them, and that the shortened supply would help to firm up prices.

• **Huge Backlogs**—In the new-car showrooms, dealers from one end of the country to the other are reporting better business. Retail orders for Oldsmobiles, said S. E. Skinner, manager of that General Motors division, are coming at an "unprecedented" rate. He says:

"Our total backlog at the present time exceeds 419,796. This compares with 270,000 unfilled orders last July. We are unable to keep pace with the flood of new orders flowing into the plant."

Hudson sales manager N. K. Van Derzee claims that factory sales representatives are being bombarded by letters, telegrams, and telephone calls from dealers—all demanding more cars. "To keep everybody happy in a situation like this," he said, "is impossible."

• **Kaiser-Frazer, Too**—The same state of mind prevails at other companies. Kaiser-Frazer Corp., newcomer to the industry, reports that demand has picked up sharply with improved weather—an apparent indication that recent rumors of falling K-F sales have been, if not overdrawn, at least outdated.

Packard's president, George T. Christopher, says that his production schedules call for increases to 55 cars an hour during April.

CAR OUTPUT UP

Despite a shortage of natural gas in Detroit during February, first-quarter output of cars and trucks in all U. S. and Canadian plants was high—not far from the fourth quarter of 1947 when 1,378,411 jobs were completed. The total was 11.2 percent over comparable 1947 figures. The totals by months, as tabulated by Ward's Reports (March figure is preliminary):

	1948	*1947*
January	442,930	375,159
February	400,577	399,968
March	509,777	441,101
Totals	1,353,284	1,216,228

With Ford closed for its changeover, the second-quarter output will likely be lower. Another factor even more depressing to prospects: Steel, cramped by coal shortages, is running out fast; its continued lack could close plants rapidly later this month.

Record Story

Small operator finds big market for hillbilly, folk, and blues recordings; plans expanded sales force.

Big operators in the recording business count on two things to keep their cash registers ringing: (1) overnight hits that draw customers into the record shops; and (2) a backlog of old favorites, popular, semi-classical, and classical, which enjoy a steady sustained popularity.

But the smaller companies have to find a different formula.

• **Found: A Formula**—Cincinnati's King Record Distributing Co. is one of the little fellows that feels it has found a formula that works. King employed 10 persons when it turned out its first discs a little more than three years ago; the company now has 300 office and factory workers (plus a sales force). It turns out more than 800,000 records a month, has distributing branches in six cities. This week company officials were busily planning to open six more branch offices immediately, 19 more within the next two years.

King's formula: recording hillbilly, folk, spiritual, and blues artists, plus an ambiguous category of songs called "race" music. By concentrating on these types, the company has been able to sell more than a million copies each of records made by such little-known characters as "Cowboy Copas" and "Grandpa Jones."

• **Founder**—Sydney Nathan started the company when, as a retailer, he found that major recording companies couldn't supply him with enough hillbilly and folk records to meet customer demand. Knowing nothing about record manufacture, he went to the big record-makers for the necessary know-how. But these companies were unwilling to dispense their recording processes to a possible competitor.

Finally he picked up the information he needed from the American Printing House for the Blind in Louisville, Ky. The concern was a semipublic institution which, in addition to printing books in braille, made records for the blind.

• **Growing**—The first records came off the King presses in October, 1944; within a year they were coming off fairly steadily. In 1946 the company began nationwide distribution.

The company's big year was 1947. Production jumped; King acquired more space, equipment, personnel. He discontinued his distributorships and opened his own distributing branches in New York, Charlotte (N. C.), Chi-

OUR misguided marauders are understandably embarrassed. They've come up against Cyclone Fence before, but never got the hang of it. Maybe that's why more and more plants are depending on Cyclone Chain Link Fence for all-round protection. How about *your* plant?

Choose Cyclone, and you have a fence of rugged construction and sound design, tested to stand up under difficult conditions of terrain or climate, and to stay taut and true through the years.

Cyclone factory-trained engineers are available to help you with your plans . . . to make cost estimates . . . and to help you choose the right type of fence for your particular job. There's no obligation, of course.

And whether you make your plans now or later, you'll want our free, illustrated fact-book "Your Fence." It gives data and specifications on 14 types of U·S·S Cyclone Fence—the most widely used property protection fence in the world. *No job is too large or too small.*

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(American Steel & Wire Company)
Waukegan, Ill. · *Branches in Principal Cities*
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Clip this coupon—and send it to:
Cyclone Fence, Waukegan, Ill., DEPT. 448
We'll send you our free, 32-page book on fence. It's full of facts, specifications, illustrations. Shows 14 types of fence. Before you choose any fence for your property, get the facts about Cyclone.

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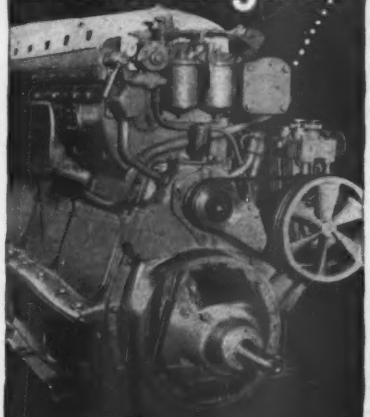
Interested in fencing: ☐ Industrial; ☐ School; ☐ Playground; ☐ Residence. Approximately.....feet.

UNITED STATES STEEL

For dependable starting of
Diesel Engines



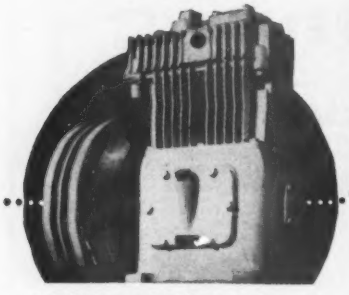
Quincy Compressor Installation with Enterprise Diesels

Quincy
COMPRESSORS

DEPENDABILITY and ADAPTABILITY are the requisites whenever air power is used for Diesel starting. That is why many Diesel engines come equipped with Quincy Compressors as standard. Quincy Compressor functional design lends itself to practically every conceivable installation and becomes a part of the unit which it serves. Whether constant or intermittent operation is required Quincy Compressors serve with complete dependability and a minimum of maintenance. Quincy Compressors are available in capacities ranging from 1 to 80 cu. ft. displacement, up to 500 lbs. pressure p.s.i. Wide variety of mountings in either air or water-cooled models. Let a Quincy specialist help you with your compressed air problems. Write Dept. W-48 for details.

Quincy Compressors for many jobs

DRIVING • CHUCKING • LIFTING • STARTING • INFLATING • PUMPING • BRAKING • BLOWING • SPRAYING • PRESSING • FILLING • AGITATING • CONTROLLING



QUINCY COMPRESSOR CO.
QUINCY, ILLINOIS
Branch Offices: New York • Chicago • San Francisco • St. Louis

cago, Dallas, Oklahoma City, and Los Angeles.

• **Operation**—Three affiliated companies are involved in the King operation. Lois Music Publishing Co. sifts through writers' manuscripts to find suitable songs. Typical artists are Texas Ruby, Gatemouth Moore. Royal Plastics Corp., another affiliate operating in the King plant, produces the records. King Record Distributing Co. does the peddling.

According to Nathan, the Petrillo ban on record production won't touch King. The company has 1,000 master recordings of songs of this type which "will be as good in five years as they are today."

• **Sidelines**—Besides turning out its own Red and Blue Label records, King produces sizable quantities of records for other companies. At least 65 smaller concerns have used King's plating facilities. But making records for other companies is just a sideline for King. The company's main income comes from its own cornfield.

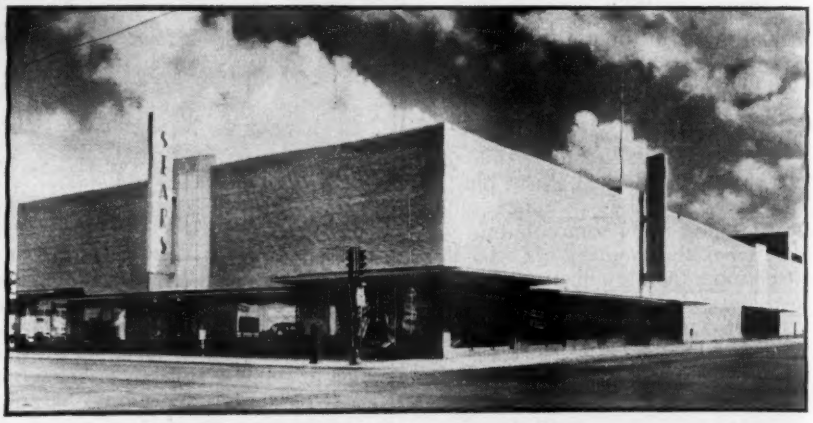
FTC vs. Discounts

Tire Big Four file quantity schedules with FTC. The commission may put a ceiling on them.

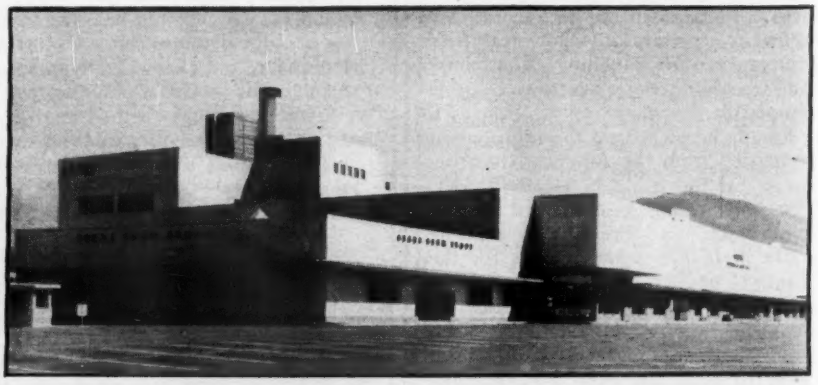
Independent retailers—especially independent tire dealers—were cheering this week because the Federal Trade Commission had won the first round of a battle dear to their hearts.

The victory: The Big Four rubber companies (Firestone, Goodrich, Goodyear, U. S. Rubber) had finally filed their quantity price discounts with FTC. It took months of legal maneuvering to bring that about.

• **FTC's Powers**—What the Big Four are bucking is a possible FTC action to limit discounts. Under the Robinson-Patman act the commission has the power to specify the quantity of any product beyond which a manufacturer



Sears, Roebuck Store in Houston . . .

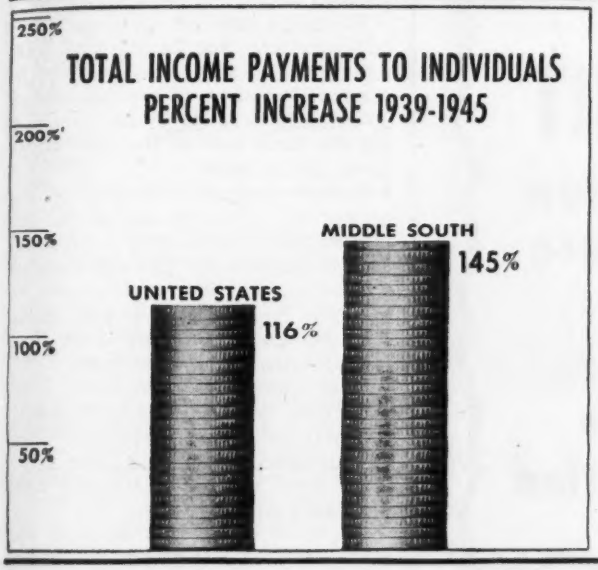


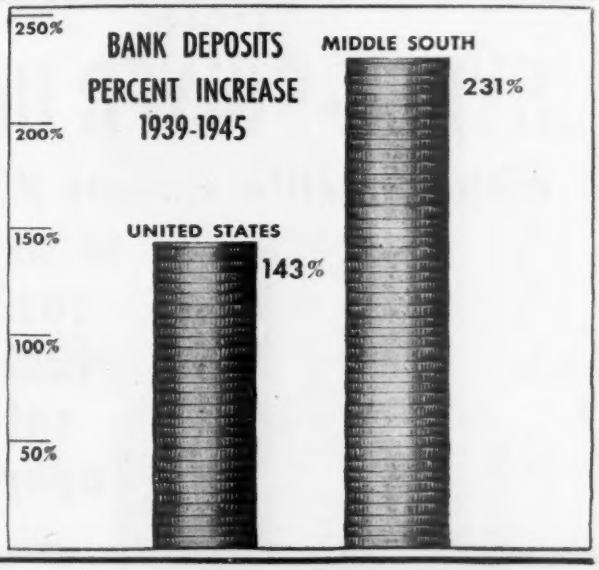
. . . And in Salt Lake City—They Point Up a Trend

Typical of the low, modern retail stores that Sears, Roebuck & Co. has opened over the country in the last two years (BW—Apr.3'48,p66) are those in Houston and Salt Lake City. With simple, functional lines, Sears designates them as standard "A" type stores. They also offer customers plenty of parking space in adjoining lots.

IN THE MIDDLE SOUTH

Business is Better than in the U. S. A....!





Individual income in the U. S. A. is at its highest peak. Yet, income has grown faster in the three related states of Arkansas, Louisiana, and Mississippi than in the U. S. A. as a whole.

The charts above show this progress. Actually, they have deeper meaning. War-time gains in the South are here to stay. Workers are profiting from new skills. Farmers are raising new crops, with modern methods and low-cost electricity to give greater yields.

Folks Can Enjoy Their Income Too

Endless waterways, temperate climate, wide-open spaces make this area a sportsman's paradise the year round. It's a good place to live with friendly neighbors. Population is 97% native-born—intelligent, adaptable, loyal workers.

A Broad Base for Prosperity

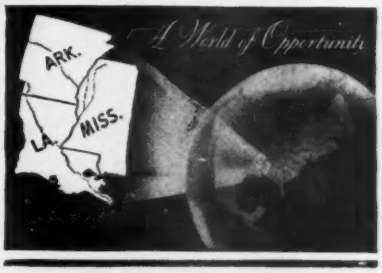
Industries turn more and more to this area, because of rich natural resources and money-saving transportation. These figures give you an idea of the natural wealth in the Middle South.

36% of U. S. Barite	54% of U. S. Rice
93% of U. S. Bauxite	10% of U. S. Salt
27% of U. S. Cotton	74% of U. S. Sugar Cane
10% of U. S. Petroleum	21% of U. S. Sulphur
12% of U. S. Natural Gas	11% of U. S. Lumber

70% of U. S. Tung Nuts

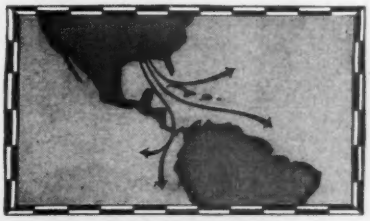
Power for Prosperity

The four electric service companies (listed below) are good examples of our American system at work for all the people. They are closely integrated and interconnected to insure a constant supply of low-cost, dependable electricity. They provide the power for profitable industry and commerce, progressive farming, and better living in the areas they serve.



Gateway

from the world's richest valley to the rest of the globe



For further information, write any of these electric service companies:

ARKANSAS POWER & LIGHT COMPANY
Pine Bluff, Ark.

LOUISIANA POWER & LIGHT COMPANY
New Orleans 14, La.

MISSISSIPPI POWER & LIGHT COMPANY
Jackson, Miss.

NEW ORLEANS PUBLIC SERVICE INC.
New Orleans 9, La.

THE MIDDLE SOUTH:..A WORLD OF OPPORTUNITY

Only

HEIN-WERNER

offers

HYPER*-POWER UNIT

with long-life Heinite Piston to assure easier, faster, safer operation

*HYPER, according to the dictionary, means over, above, beyond the ordinary.

Hein-Werner HYDRAULIC JACKS

Made in models of 1½, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity . . . tested at 1½ times rated capacity. See your nearest industrial supply distributor or write us for complete details.

HEIN-WERNER CORPORATION • WAUKESHA, WIS.

cannot grant additional discounts. FTC can do this if it finds that "available purchasers in greater quantities are so few as to render differentials . . . unjustly discriminatory or promotive of monopoly." To date, FTC has not invoked this power.

In a nutshell, the law means this: FTC can tell a manufacturer that a single carload, for instance, is the maximum quantity on which he can vary his discount rate.

What the rate will be is up to the manufacturer. But having fixed that rate for a carload, say, he can't up the discount for buyers of two carloads, or 20 carloads. The bigger buyers would get the same rate as the one-carload buyer, and no more.

• **Pressure**—Successful wind-up of the present FTC trial run against the tire manufacturers would open a Pandora's box of business for the commission—retailers in other lines would clamor for a similar inquiry. That is one reason FTC has ignored this part of the Robinson-Patman act all these years.

• **Vital Questions**—Information FTC asked from the Big Four is packed with dynamite for customer relations. What the commission wanted to know is:

(1) Total number of tire and tube purchasers during 1947;

(2) Total dollar sales of tires and tubes, except sales to government bodies or through the company's own retail stores;

(3) Name and address of each purchaser who bought $100,000 of tires and tubes during 1947; and

(4) All price lists, discount sheets, contracts, agreements, or documents which provided the basis for the prices to each of these big buyers.

• **Next Step?**—Next step: if the data filed doesn't answer the questions in full, FTC will have to go after the companies again, perhaps in the courts.

If and when FTC decides to go ahead, it'll still mean months more of investigation and hearings before a limit on discounts is set.

REFRIGERATOR PRICES DOWN

Two companies—Westinghouse Electric and Avco Mfg. Corp.'s Crosley Division—are chopping prices on refrigerators.

Suggested new prices for Westinghouse regulars: for the 7-cu.-ft. American Challenge, $229.95—a $10 cut; for the 9-cu.-ft. American Heritage, $279.95—off $20. Its new 9-cu.-ft. American Leader is priced at $249.95; the company says that is the lowest price for this size model in the market today.

Crosley is cutting its refrigerator prices by $20 to $50. On its Shelvador, prices range from $259.95 for its 8.8-cu.-ft. model to $399.95 for the 10.5-cu.-ft. type.

Jewelry Drive

Industry council to spend $400,000 in effort to boost costume jewelry sales, way down since last of January.

Since late January, costume jewelry sales have sagged disastrously. Last week the Jewelry Industry Council was in the midst of a drive to bring business back to life. It involves a $200,000 magazine campaign, followed by another $200,000 for sales-aid kits to council members.

The manufacturers hope this will turn the trick.

• **Sudden Drop**—They did a whopping business last fall when stores were girding for a big Christmas season. Had there been enough jewelry workers available, they figure, they would have sold even more.

Business looked good even in early January of this year. Then suddenly wholesale buying slowed to a dribble. It has been dribbling ever since.

• **Reasons**—The manufacturers lay the present sales inertia to a number of reasons:

• Consumer resistance to prices. Staple jewelry items for dress trim still sell fairly well, but other lines aren't moving.

• The 20% excise tax on jewelry. Consumers think twice about buying a $5

JEWELRY REPAIR KIT

Many a costume jewelry retailer claims that he loses time and sales because he can't make repairs on jewelry in the store. Now Omar, Inc., of New York has developed and introduced a repair kit for retailers. It has 58 items—including tools, thread, clasps, pins, stones—for making simple repairs.

NOW—Dravo *Counterflo* Heaters can be shipped promptly from stock.

NOW—The unsurpassed leader for open-space heating is available immediately.

AND—Immediate availability means that you can take advantage of the summer air-circulating feature right now. You simply flick the selector switch and the large fans instantly go to work to help maintain comfortable working conditions for employees. Even more important, you'll be prepared in advance for next heating season.

In thousands of industrial and commercial establishments you'll find Dravo *Counterflo* Heaters establishing records for efficiency and economy. They'll prove their worth to you, too, and they can be

SHIPPED IMMEDIATELY FROM STOCK
for Winter Heating and Summer Ventilating.

For quick action call the Dravo Representative listed under "HEATERS" in your classified telephone directory, or contact Heating Section, Dravo Corporation, Pittsburgh 22, Pa.

Dravo also manufactures the DRAVO CRANE CAB COOLER *for air conditioning hot-metal crane cabs*

DRAVO CORPORATION

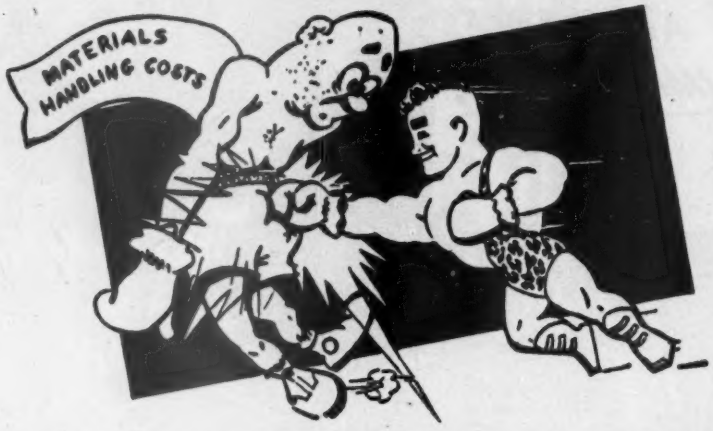
PITTSBURGH • CLEVELAND • PHILADELPHIA • DETROIT
NEW YORK • CHICAGO • ATLANTA • BOSTON

Sales Representatives in Principal Cities

DRAVO

MOBILIFT

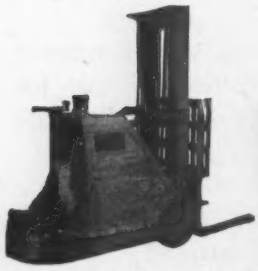
"The Mighty Midget"



A COST CUTTER WITH A PUNCH

It's a tough battle, this constant fight to keep production costs down. Shortages keep material costs up. Labor costs are high and steadily increasing. Taxes are as high as ever.

But there is one logical way out—and that is in handling materials. Handling costs are no match for MOBILIFT—*affectionately* known as "The Mighty Midget" by the thousands of users. MOBILIFT, because of its size, its ease of handling and its all around operating speed has many economies. It makes more trips per hour—moves more tonnage per day than any other fork lift truck on the market. It saves time, space and human energy. It cuts handling costs in every department from the loading platform to the warehouse. Put the Mighty Midget to work cutting costs in your plant or warehouse. Send for our 16-page illustrated folder on MOBILIFT operation.



MOBILIFT "The MIGHTY MIDGET"

MOBILIFT CORPORATION
835 S. E. Main Street, Portland 14, Oregon B-W

Please send me your illustrated folder on Mobilift operation.

Name_____

Firm_____

Address_____

City_____ State_____

bauble when they have to fork up an extra $1 for tax.

• Bad weather between Christmas and Easter. It has made retail buying spotty.

• Some stores are overbought, as the manufacturers figure it. When the Easter and spring lines were put on the market in January, wholesale buyers went to the Rhode Island manufacturing center in droves and bought heavily. Now they are trying to work off inventory.

• **Slowdown**—As the industry probes for other reasons, manufacturing slows down steadily. Production is now about 10% below a year ago. Many jewelry makers are now on a 40-hour week. Some plants (those making staple items) still work 48 hours; but others have cut back to less than 40 hours and have laid off workers. Overtime has disappeared completely.

Manufacturers fear that they may have to make further cutbacks. Normally the industry slows down somewhat after Easter as the fall lines (which go to market about May 1) are prepared.

• **Exports Down**—The export market, which in other years has helped to take trinkets off manufacturers' hands, has also dried up quite a bit. Canada's ban on all but necessary imports (BW—Nov. 22'47,p117), and a similar, more recent ban by Mexico has hit the industry at just the wrong time. And dollar shortages elsewhere have kept most U. S. jewelry in the U. S.

Exports of gold and platinum jewelry have held up best—much better than costume jewelry. In January, 1947, exports of these types amounted to $264,109; in January, 1948, the amount was $253,648—a dip of only 4%.

Other types of jewelry, however, took a shellacking. In January, 1947, costume jewelry makers sent $1,181,843 worth abroad. Only $680,523 moved this January. That's a drop of 42%.

One Providence (R. I.) manufacturer is still successfully bucking the export trend: He makes synthetic pearls, exports all he can make to Africa.

MAIL ORDER BOOM

For the mail order business, 1947 was a boom year. Sears, Roebuck & Co. reported a terrific sales gain—23%—over 1946 (BW—Apr.3'48,p66). Last week Montgomery Ward & Co. announced that it had done almost as well: For the year ending Jan. 31, 1948, its sales hit $1,158,674,514—a gain of 18.9% over the year before.

This still left Ward a couple of steps behind Sears, whose net sales last year were $1,981,500,000. But it put Ward into the $1-billion class for the first time in its history. Net profit was $59,050,066, almost $17-million more than the year before.

Floor Cover Drive

Sloane-Blabon, veteran linoleum manufacturer, plans new sales tack and expanded plant to meet rising market.

Sloane-Blabon Corp. is the nation's third largest producer and seller of smooth floor coverings (such as linoleum). Yet this 60-year-old subsidiary of Alexander Smith & Sons Carpet Co. is practically unknown to consumers.

Last week, the company came out with plans to change this state of affairs. For the first time, it is going all-out on a national advertising campaign aimed at the consumer—to feature and establish the Sloane-Blabon brand name.

It's not that the market is soft. Manufacturers are allocating their output and believe the market will be good for several years.

• **Problems**—Plant modernization—long overdue in the industry—died on the vine in the war years. To catch up, Sloane-Blabon is going in for a program of revamping and expansion—to the tune of $9-million. It involves complete modernization of the company's two big plants in Philadelphia and Trenton, N. J. When it's completed, production capacity will be doubled. S.-B. is also adding new types of covering to its line, which now numbers 300 products. The plants will make in quantity all the modern types of floor, baseboard, and wall coverings—inlaid felt-base linoleums, asphalt, Koroseal, tiles.

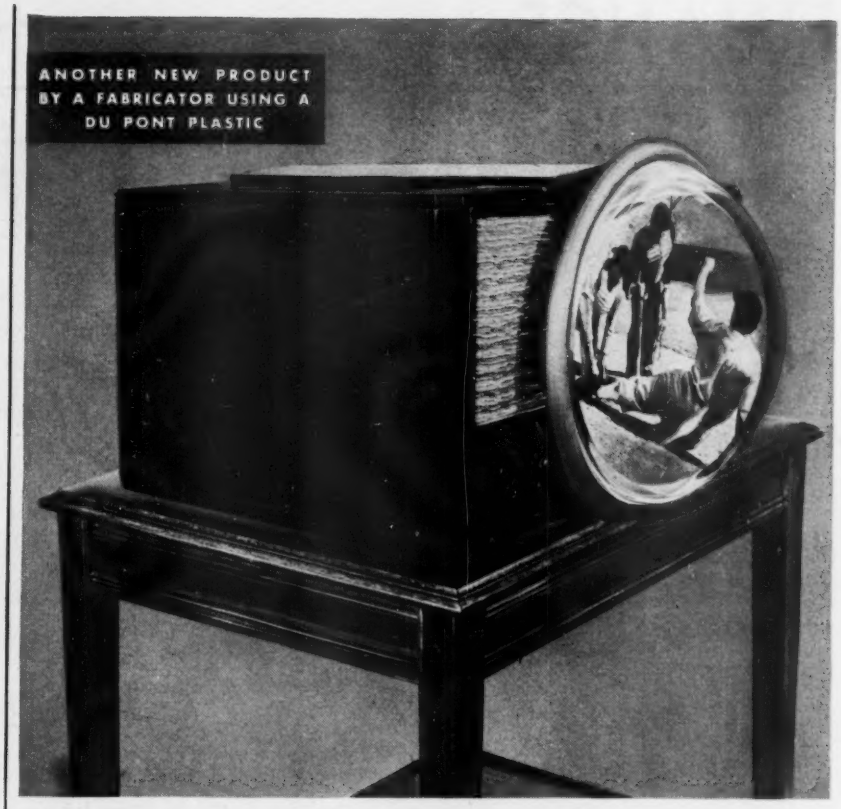
Another problem for the industry: Selling floor coverings, like selling carpets (BW—Jan.17'48,p38), needs special techniques. The stuff is hard to display. Long rolls stacked against the walls don't sell themselves. So Sloane-Blabon is going in for glamor displays too.

• **Technique**—The company has what it calls a new and revolutionary technique. Its primary aim is the dealers—but company officials see no reason why dealers can't take a tip from the wholesale displays and carry over the new ideas in their own stores.

The new display setup had its unveiling at the company's New York showroom last week. It permits clean and visual showing of the coverings at eye-level angle. Samples are arranged in tiered louvers built into casements. The system means better use of floor space. In the New York room—45 ft. x 140 ft.—there are more than 300 samples. Fluorescent lighting makes for better visibility.

S.-B. plans similar display rooms in Chicago and San Francisco.

• **Retailer, Too**—For the retailer, the company features a small display cabinet that shows off 32 different samples.



TELEVISION LOOKS BETTER THROUGH "LUCITE"

Liquid-filled lens of Du Pont plastic magnifies up to 2½ times... makes television image visible to a large audience

Here's more pleasure for more people with television sets. This new lens gives a clear image enlarged up to two and one-half times! Reason? A hollow lens of "Lucite" is mounted in front of the picture-tube. Filled with a clear oil, it enlarges the image and reduces eyestrain.

In developing television lenses, manufacturers needed an optically clear material—light in weight, durable, and able to withstand temperature changes without cracking. They found all these qualities and more in "Lucite" acrylic resin. "Lucite" has unusual optical properties, resists breakage, has high tensile and flexural strength and is easily formed into curves.

More and more manufacturers are turning to Du Pont "Lucite"—for smart packaging, eye-catching signs, and other improved products. It's available in many colors—transparent, translucent or opaque. And "Lucite" is readily fabricated or molded.

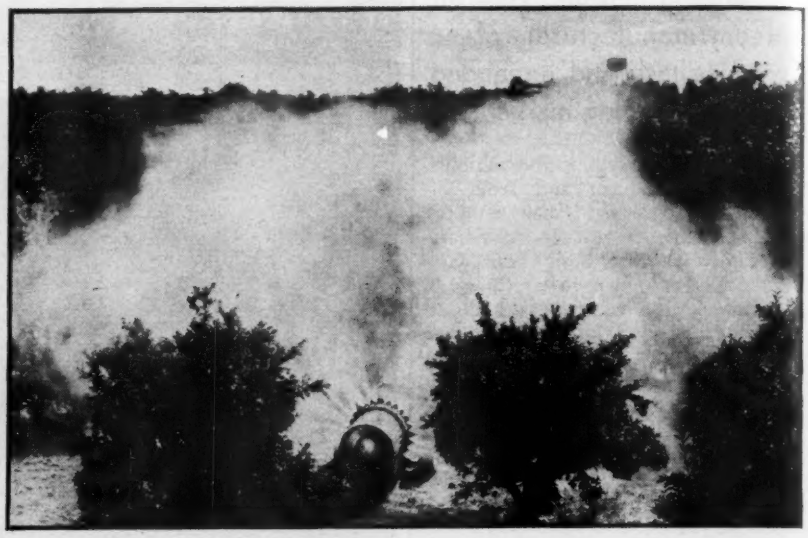
Perhaps *you* can profit with Du Pont "Lucite" or another Du Pont plastic . . . in developing a new product or improving an old one. Write for literature, E. I. du Pont de Nemours & Co. (Inc.), Plastics Department, Room 604, Arlington, N. J.

Lens illustrated made for Liquid Lens Corporation by Plastic Pioneers, Inc., both in Jamaica, N. Y.

Listen to Du Pont "Cavalcade of America" —Every Monday Night, NBC Network

DU PONT
REG U.S. PAT OFF
Plastics
BETTER THINGS FOR BETTER LIVING
THROUGH CHEMISTRY

THEN: John Bean began with hand spray



TODAY: F.M.C. Speed Sprayer—one of many products—drenches a Florida citrus grove

Food Machinery Corp.: A Saga in Diversity

Starting with a hand spray pump, company has raised big crop of products and profits. Now it's going into food-freezer field.

Take a small hand spray pump. Add the right amounts of engineering and research. Flavor with imagination and daring. Tend carefully for 64 years, and you've got the $40-million Food Machinery Corp.

• **Profit**—Tucked away in San Jose, Calif., Food Machinery belies its size and potency. Last week the corporation tossed the investment fraternity a meaty bone to chew on—an annual report showing income of $6,164,526 on 1947 sales of $77,170,469. Making allowance for a 2-for-1 common stock split late last year, that was equal to $4.48 a share.

F.M.C. didn't make all that profit out of pear peelers, peach defuzzers, cherry pitters, pressure cookers, and the other food processing equipment suggested by its name. A little of it came from such improbable sources as auto wheel aligners, car washers, fire-fighting equipment. Some came from insecticides and fungicides, cattle-dusting devices. Some from pumps—tiny ones to bring water into your home, big ones to supply a whole town.

• **New Product**—And if Paul L. Davies (cover), president of F.M.C., has figured it right, his 1948 report will show a few pennies of profit from a brand new product: an automatic food freezer (picture, page 90).

Evolution of the food freezer typifies the close-to-the-vest policy that has hoisted Food Machinery Corp. into a

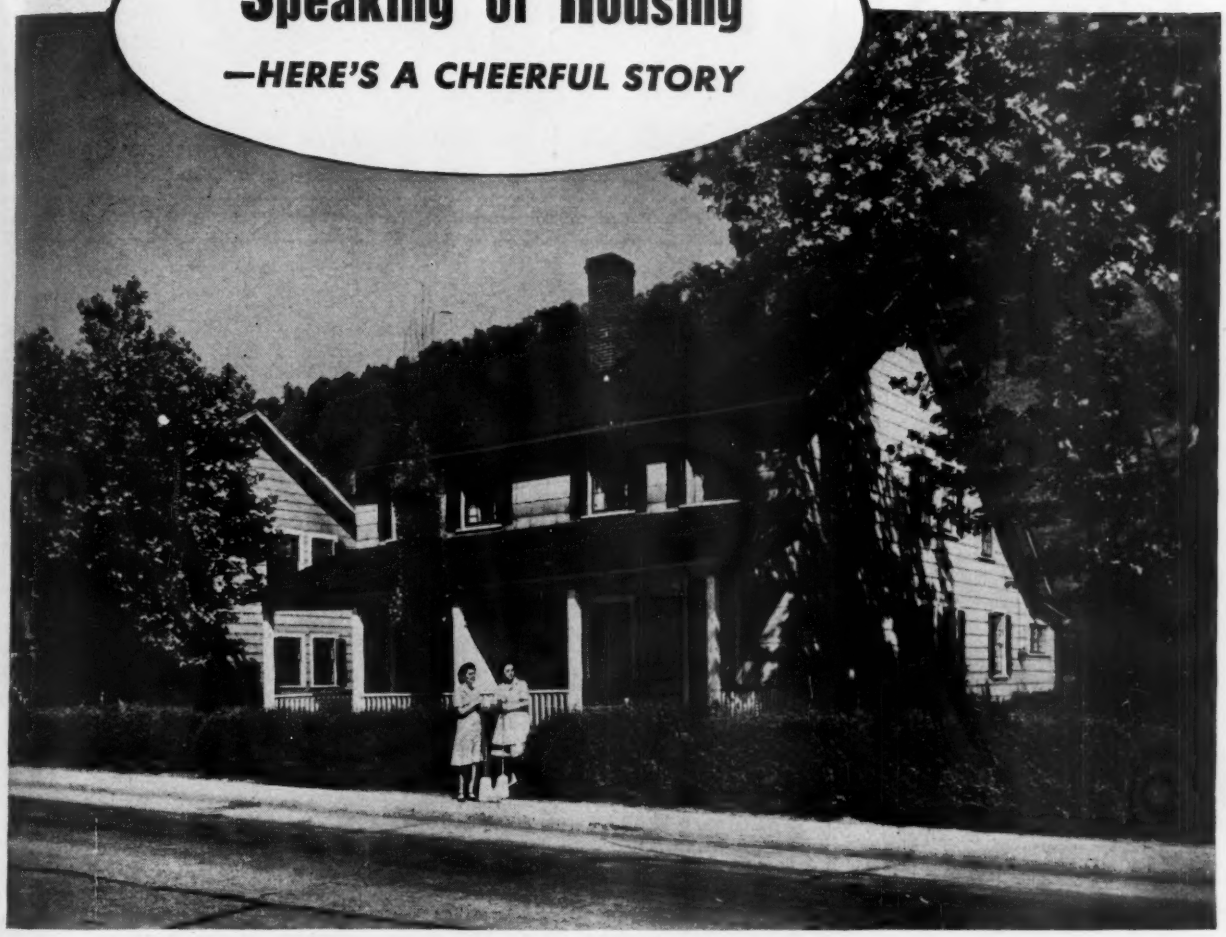
FOR HOMES: a tiny jet pump, made by the Peerless Pump Division of F.M.C.

FOR MUNICIPALITIES: a pump for the local water system

FOR GARDENS: F.M.C.'s new riding-type tractor, to be introduced this month

Speaking of Housing

—HERE'S A CHEERFUL STORY



Less than a year ago, half of the double house you see pictured above rented for $15 a month. The other half rented for $20 a month.

The house was built by a coal mining company, which rented it to two of its miners. One of the miners earned over $3,600 in 1947. The other, who was a mine foreman part of the year, earned more than $5,000.

Recently the two miners got together and purchased their pleasant home for $3,000 each.

A simple event? Yes, but a significant one. Today, about two-thirds—over 260,000—of the nation's bituminous coal miners either own their own homes or rent from private landlords. And among the remaining third, who now rent from their companies, there is a growing trend to buy the houses they live in.

MODERN WORKING CONDITIONS have also come a long way—due largely to the mechanization program sponsored by the country's progressive coal operators. Nowadays, more than 91% of all bituminous coal mined underground is mechanically cut, and about 60% is mechanically loaded. Only about 4% is mined by pick and shovel.

Thanks to huge investments in mechanized equipment and to skilled management and keen competition within the industry, America's bituminous coal mines are the most productive—and pay the highest wages—in the world. They are exceeding all former production records in response to this country's stupendous needs for coal, and to help rebuild the war-shattered economies of other nations.

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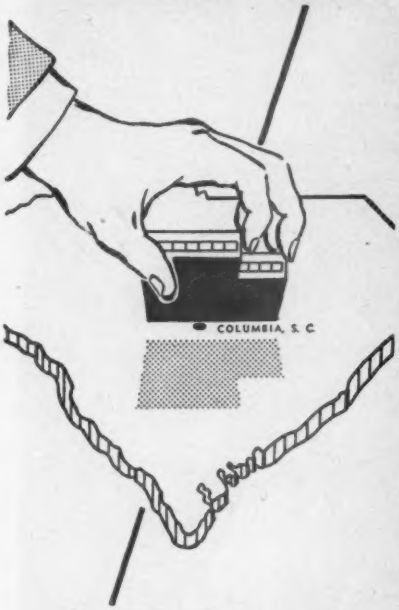

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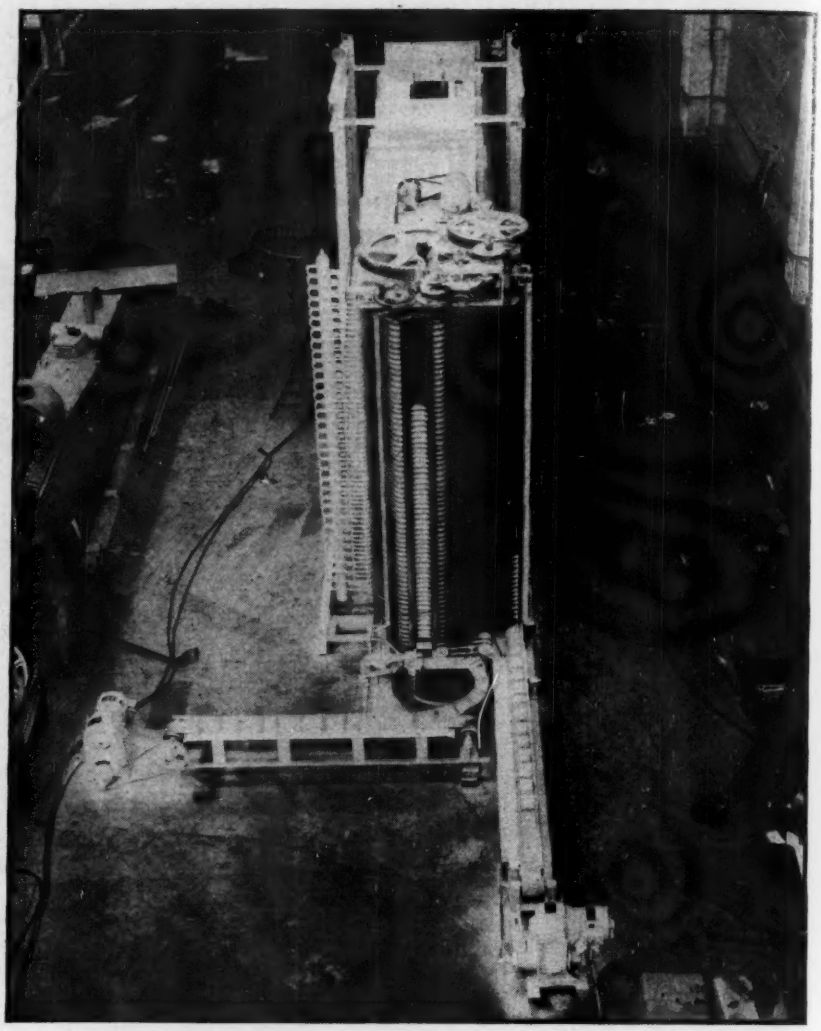


NEW FOOD FREEZER has entrance and exit at same end. Packages enter on conveyor (left). They are stacked on rotating screws, pushed along the chilled surfaces of snug-fitting aluminum freezing shelves. Frozen, they emerge on discharge conveyor (right).

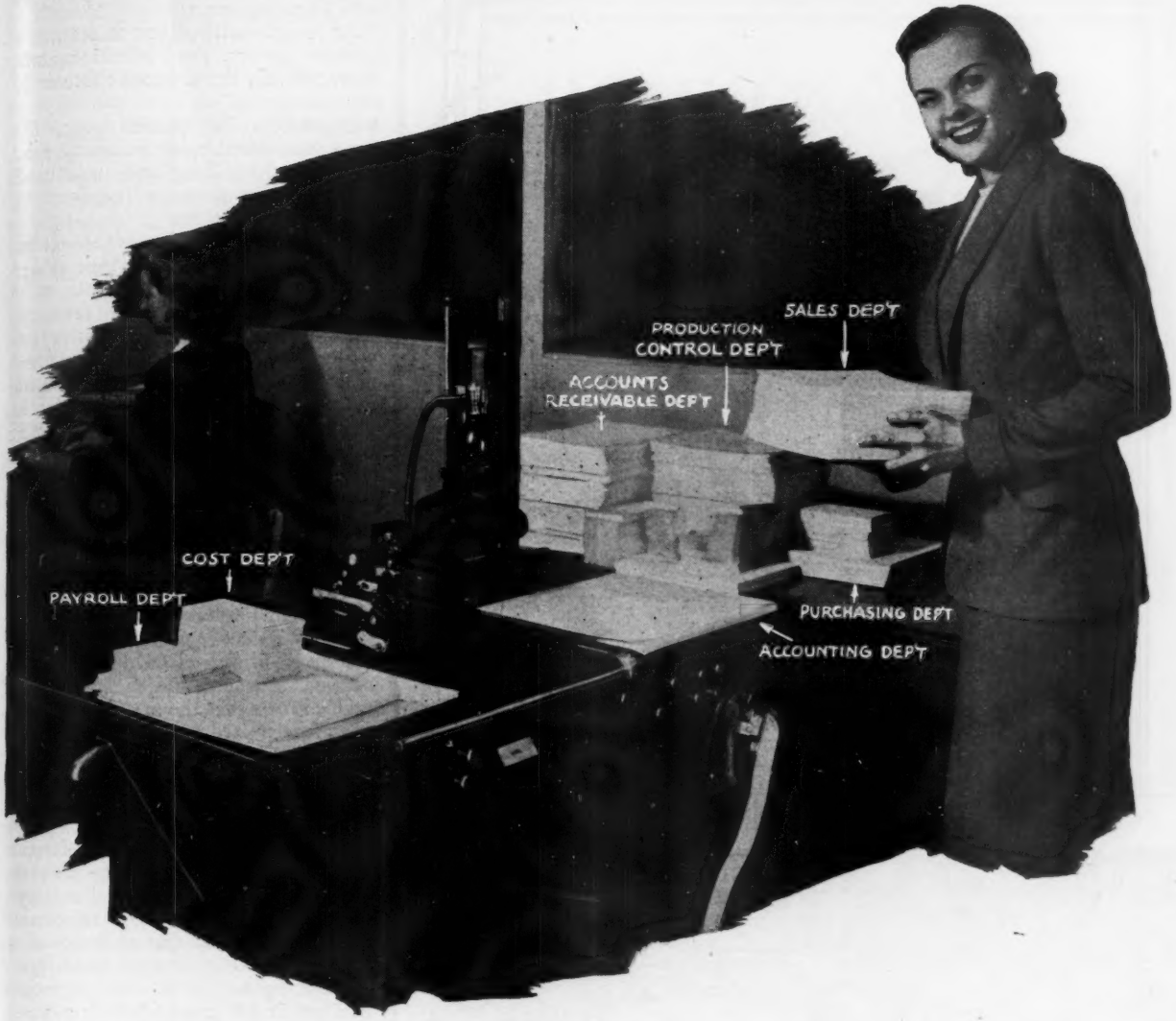
dominant position in several fields. In simplest terms the policy is: there's no percentage in just another competitive product; make it better or don't make it.

• **Prayer Answered**—To ring the bell in the frozen-food industry, Davies and his hard-headed board of directors knew that they would have to come up with something more than just another freezer. Anybody with a compressor, an insulated box, some pipe, and enough baling wire to hold it all together was in business. Food Machinery people had no taste for that kind of competition. So they steered a wide course around food freezing. Now they think they have the answer to the food freezer's prayer.

Conventionally, packaged food is frozen in batches in a blast of very cold air, or between refrigerated metal plates. Properly controlled, batch-freezing can produce excellent quality. But even its most enthusiastic friends concede that it lacks the rhythm that piles up labor savings for a belt-line production technique.

• **Contact Freeze**—Food Machinery's first automatic freezer, in operation at the Santa Clara (Calif.) plant of Pic Sweet Food, Inc., turns out 50 to 90 domestic-size packages a minute, in a continuous stream. Packages are fed automatically through a snug aluminum sleeve that holds the refrigerant within its hollow walls. The intimate sliding contact of frigid aluminum (as low as —50F) with three surfaces of the package assures zero temperature at the center of the package when it leaves the freezer.

The F.M.C. freezer uses a slightly thinner package than you see in retail cabinets, but the package holds the same amount of food. The change in package size brings a savings in fiberboard cost—as much as $5.90 per ton of product frozen. But this saving is only incidental; the purpose in cutting package size is to eliminate the dead



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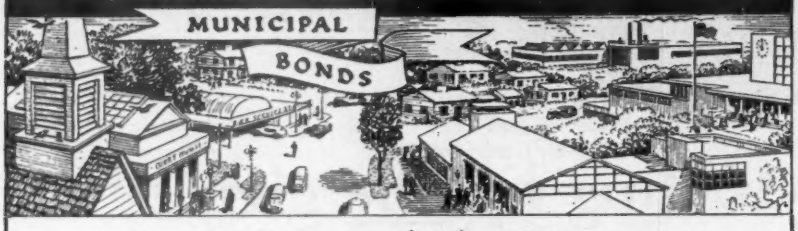

Look beyond the Figures

REPRESENTATIVE OFFERINGS:

Cincinnati, Ohio
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El Paso County (Colorado Springs, Colo.) School District No. 11
School Building, 1¾% & 1½% Bonds
Glendale Unified School District, Calif.
School, 1½% Bonds
Holyoke, Massachusetts
Veterans Housing, 1⅜% Bonds
Jefferson City, Missouri
Bridge & Public Park, 1½% & 2% Bonds
Marshfield, Wisconsin
Sewer, 1½% Bonds
Salina, Kansas
General Improvement, 1¾% Bonds

The selection of municipal bonds for investment does not readily reduce itself to pure formula. Beyond a borrowing community's financial statement lie questions of history, law, economics, sociology and politics—questions not reducible to ratios and percentages.

Important supplementary considerations are the type and record of the community, its permanence, economic advantages, industry diversification, growth and debt record. Further factors for inquiry are the responsibility and conservatism of its people and the restrictions on incurrence of public debt.

These are but a few of many items investigated by Halsey, Stuart & Co. before purchasing municipal bonds for offering to its customers. Send without obligation for our latest offering list.

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air space inside the box that interferes with heat transfer.

As it does with other of its more intricate devices, Food Machinery will lease, not sell, the automatic freezer to food processors.

• **Leaper**—On the printed page, the jump from hand spray pump to food freezer seems a long and improbable one. Actually it was a leap-frogging process.

For organization purposes, the company considers that it has five principle product lines: (1) agricultural equipment, (2) agricultural and industrial chemicals, (3) canning machinery and equipment, (4) packing-house and processing equipment, and (5) pumps and water systems. There are 10 manufacturing divisions, 26 factories, and 13 branches in 14 states and one Canadian province.

Essentially, the family and corporate heirs of John Bean never took their eyes off that little spray pump (picture, page 88) that he built in 1884 to combat the fruit disease known as "San Jose scale." For out of that spray pump (and his $25,000 capital) have grown two diverging yet related lines of products: (1) sprayers, and (2) pumps.

• **One Line**—Take the sprayer line. Now fully mechanized, it includes specially adapted sprayers for tree, field, and truck crops, and an all-purpose sprayer that paints your barn as easily as it kills the parasites on your cattle.

Reports filtering back from farmers to San Jose and the sprayer-plant in Lansing, Mich., indicated that a sprayer could be a handy weapon in case of brush or barn fires. Out of those voluntary testimonials grew Food Machinery's fog fire fighter. It develops a nozzle pressure of 600 psi. and chills a fire to death instead of drowning it in torrents of water. It carries its own water supply, uses only a fraction of the water required by conventional equipment. Army and Navy air fields used it on crash trucks during the war. In peace, it is winning acceptance in urban and rural areas.

Food Machinery also converted the basic sprayer into an efficient car washer. Selling it, though, wasn't so easy. Salesmen reported that they needed a broader line of automotive service equipment. This brought into play another corporation policy: Having made a better product, don't bury it with mediocre salesmanship or inefficient distribution. The car washer needed companion items in the sales kit, so the engineering department developed an auto wheel aligner and a wheel balancer. Now all three items enjoy brisk demand.

• **Pump Business**—To round out its line of pumps, Food Machinery in 1933 acquired Peerless Pump Co. of Los Angeles, a manufacturer of vertical water pumps. In 1945 the Peerless Pump Divi-

sion took over the manufacturing assets of Dayton-Dowd Co. of Quincy, Ill., a leading maker of horizontal centrifugal pumps.

The line now embraces a full range from the tiny jet for the home to a giant that delivers 250,000 gal. a minute to a municipal water system. Thousands of the pumps were in military service during the war—transferring fuel, providing water supply in remote combat areas, bailing out torpedoed vessels, raising sunken battleships at Pearl Harbor.

• **Integration**—Having developed the sprayer and the pump to power it, the company then integrated the process. F.M.C. had held an interest for years in Niagara Sprayer & Chemical Co., a manufacturer of insecticides and fungicides with headquarters in Middleport, N. Y., and plants in Florida and Ontario. In 1945 Food Machinery took over Niagara and gave the farmer something to put in his sprayer. Since then it has opened new plants in Florida, Texas, Louisiana, and California, and made its Niagara Sprayer & Chemical Division a leading factor in the field.

All this horizon-widening has occurred since 1928. That's when the original Bean Spray Pump Co. was reorganized and incorporated as the John Bean Mfg. Co. (For a more expressive title, the name was changed to Food Machinery Corp. in 1929.)

• **Digression**—The immediate purpose of the reorganization was a merger with a San Jose neighbor, Anderson-Barngrover Mfg. Co. that was, for the heirs of John Bean, a complete digression; they drafted Paul Davies from his desk in a San Francisco bank to swing it. Until then their interests had been limited to the protection of crops in the field. The merger put them into food-processing equipment. Anderson-Barngrover made machinery for the canning and processing of fruit—such as the cherry pitter (picture, page 94)—meat, fish, milk. What the merged firm didn't have was vegetable-canning machinery. To correct the deficiency, it acquired Sprague-Sells Corp., Hoopeston, Ill., a leading manufacturer of vegetable and specialty canning machinery.

The Sprague-Sells purchase in 1928 smoothed out a distributional wrinkle: The Anderson-Barngrover Division in San Jose became the western outlet for products of the Sprague-Sells Division in Illinois, and vice versa.

• **Citrus Specialty**—Something still was lacking. Food Machinery Corp. had a good grip on deciduous fruit processing equipment; it had nothing for handling citrus—California's richest fruit crop. The answer was easy. F.M.C. in 1929 acquired Stebler Parker Co., Riverside, Calif., a leading manufacturer of citrus packing-house equipment. To serve the Florida citrus industry, the company annexed Florida Citrus Machinery Co.,

Every inch the Chief

Yes, *Little Chief*, our Chief measures up to the name! For it is the all-Pullman, extra-fare, transcontinental streamliner (along with the daily Super Chief) that is famous among discriminating travelers for smooth-riding speed, roomy comfort, and delicious Fred Harvey meals.

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LOOK, NO PITS! Cherry pitter, made by Anderson-Barngrover Division, takes off stems, opens door in cherry, removes the pit, closes the door tightly on pitless fruit

Lakeland, Fla., a licensee of Stebler Parker. Through a branch of the F.M.C. Packing Equipment Division at Harlingen, Tex., the company also serves the Texas citrus industry.

• **Research Pays Off**—Research and engineering are the core of Food Machinery's ambitious expansions. Each division has its own research and engineering department; superimposed on these are the central research department headed by Paul C. Wilbur, a vice-president, and the central engineering department, headed by James M. Hait, another vice-president.

Paul Davies' reliance on these men has paid dividends. For one graphic example, Hait engineered and developed the "Water Buffalo"—the amphibious tractor used by the Navy during the war. At the citrus machinery plants in Lakeland, Fla., and Riverside, Calif., and at the Anderson-Barngrover plant in San Jose, Food Machinery built more than 11,000 of these pugnacious LVT's.

The engineering department also was responsible for the riding-type garden tractor that Food Machinery is introducing this month (picture, page 88). While the tractor was in the development stage, though, Davies foresaw the need of a dealer organization to handle it. He found this—and a line of walking tractors as well—in the Bolens Products Co., Port Washington, Wis. Food Machinery bought Bolens in 1946.

• **Captain and Team**—Paul Davies stitched together the crazy-quilt that constitutes Food Machinery Corp.'s organizational pattern. He spends about half his time seeing that the stitches remain tight. Yet F.M.C. is far from a one-man organization. Davies captains a team that's long on product quality and operational efficiency. His board of directors is weighted with management men.

John D. Crummey, chairman, is a grandson of John Bean, the founder. He was active in the management from 1901 to 1940, when he yielded the presidency to Davies. Frank L. Burrell was head of Anderson-Barngrover Mfg. Co.; though now retired, he is still a director. The A.-B. division is headed by a director and vice-president, William De Back.

Other active management men on the board: Joseph B. Cary, executive vice-president; Howard C. Lisle, vice-president in charge of the Agricultural Division at Lansing; Benjamin C. Carter, vice-president and controller; Ogden S. Sells, vice-president in charge of the Packing Equipment Division at Riverside, Calif.

• **Advantages**—Including Davies, the management men, active and retired, outnumber the non-management men on the board of directors, 8 to 3.

However unorthodox this distribution of board strength may appear, it has a dual advantage:

(1) High policy decisions are made by people close to the firing line, and employees know this.

(2) As operations men who will have to carry out decisions of the board, the directors aren't likely to lay out any impossible tasks for themselves.

Such a system of checks and balances—in Food Machinery's case, at least—leaves little room for failures.

Young on the Mat?

C. & O. stockholders' war looms as annual meeting nears. Chief target: outlays to boost road's passenger trade.

Few gadflies bother corporations as much as disgruntled stockholders. And of late that swarm has been buzzing again.

In November, International Telephone & Telegraph had a spell of trouble (BW—Nov.22'47,p94) when Clendenin J. Ryan organized a committee to oust I.T.&T.'s management.

Last month, there was an American Tobacco Co. flareup (BW—Apr.3'48, p26), sparked by George Washington Hill, Jr., who seeks control of his late father's empire.

• **New Target**—This week it looked as though Robert R. Young, peppery chairman of Alleghany Corp. and the Chesapeake & Ohio Ry., now might be No. 1 on the misery list.

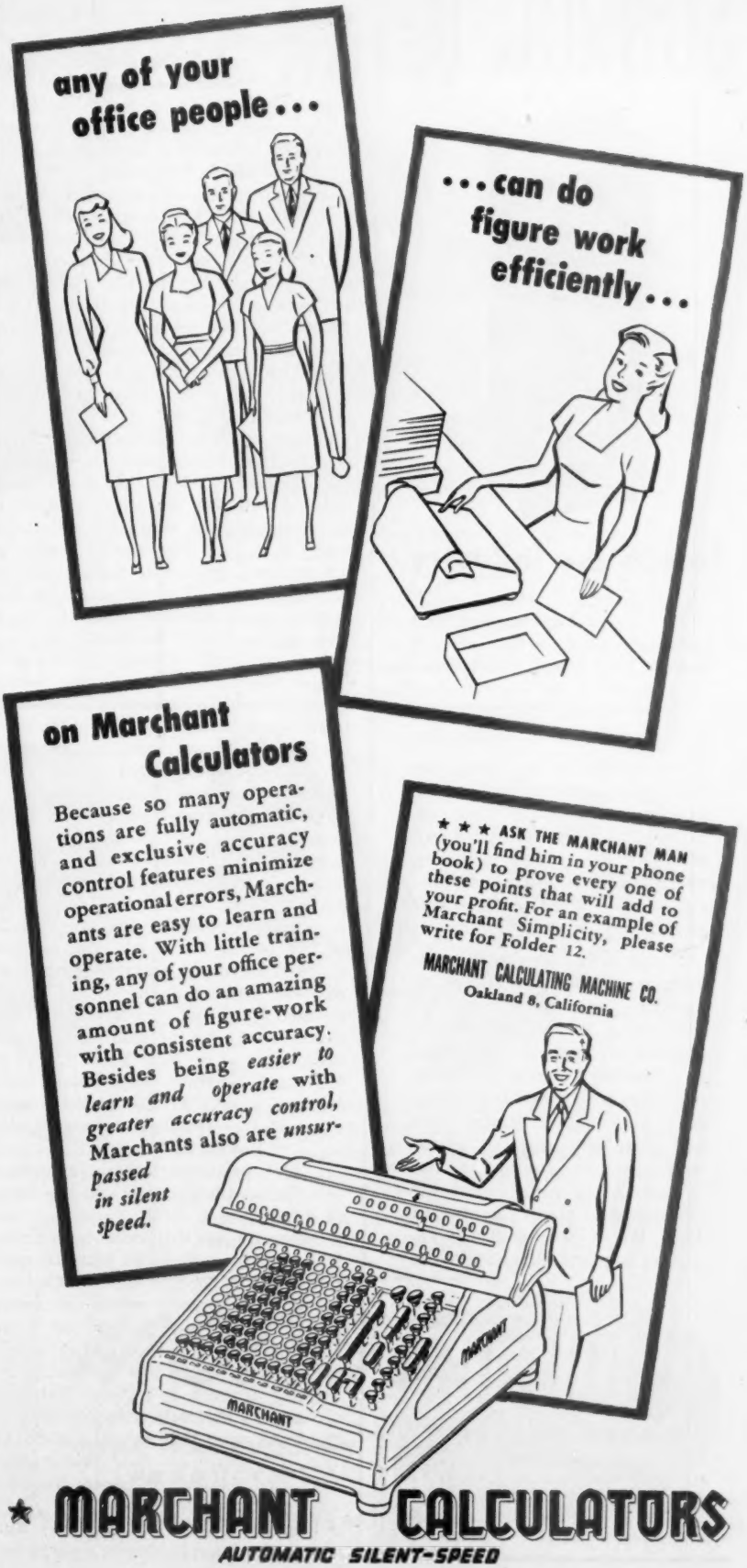
He started to move into that spot a few weeks ago when he drew fire from George Estin, Alleghany director. Estin holds 18,800 shares of that company's preferred "A" stock. He spoke his disapproval of the Young management, handed in his resignation for emphasis. Since then, he has been urging preferred stockholders to set up committees to protect their interest in the company.

• **Meeting Will Tell**—But even bigger fireworks are looked for soon. C.&O.'s annual meeting will be staged in Richmond, Va., in 10 days. That's where stockholders' attacks are expected to come to a head.

• **Sharpest Sting**—Principal dart-thrower probably will be industrial engineer George S. Jackson, New York City. Jackson considers he has quite a stake in C.&O. too. He now owns 550 shares of C.&O. common stock; until recently, he claims, his interest in the carrier was five times bigger than Young's direct holdings of common.

Jackson's charge: Young is trying to change Chessie from a freight carrier into either a combination freight-passenger line or a model passenger road. Jackson figures that the projected switch is hurting the road's ability as a money-maker.

• **Freight or Passenger**—As Jackson sees it, C.&O. is basically a coal carrier. He believes that Young's elaborate and much-publicized passenger-service plans aren't worth the cost. He checked all the data available, came up with this judgment: In 1947 alone (when passenger receipts plummeted 26%, or $4.2-million, below 1946) Young's switch program cost C.&O. stockholders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the loss of many millions of dollars of their freight-haul profits.

• **Targets**—Here are some of Jackson's chief targets:

• C.&O.'s expenditures in setting up its central reservation bureau, and the future costs of running it;

• The cost of maintaining elaborate passenger ticket office facilities in such an off-line city as New York;

• Its recent reacquisition, and extensive refurbishing, of the Greenbrier Hotel at White Sulphur Springs (this operation is said to have cost some $7-million);

• Its part in financing the Federation of Railway Progress (the organization Young recently set up to battle the Assn. of American Railroads);

• Outlays on advertising to give advice to other rail systems—not to pull in more traffic for C.&O.

• **Unsatisfied**—On these points and others he has been demanding explanations from C.&O. So far, he hasn't been satisfied with the answers. He doesn't agree, for example, with the road's claim that "it is good business to sustain a deficit, even of several million dollars annually," to provide passenger service "which gives essential support" to a $300-million freight business.

• Jackson claims: (1) that C.&O.'s passenger department is already losing much more than "several millions" annually—and its heavyweight program is still in its infancy; and (2) that it's Young, not C.&O. freight shippers, who wants an elaborate passenger service.

• **More Questions**—Jackson recently fired another long list of questions at C.&O. officials. Some of the points he probed: Alleghany Corp.'s purchase of a big block of New York Central stock—which it eventually sold to C.&O.; off-line use of the C.&O. business car assigned to Young (Jackson understands that the Duke and Duchess of Windsor used it recently on a New York-Palm Beach trip); why the road's public relations office is in New York instead of Cleveland, whether other Young interests use it; why C.&O. leases a costly suite at the Waldorf Astoria in the name of Robert R. Young.

C.&O. president Robert J. Bowman says the road is going to skip this batch of questions—36 in all.

• **Support?**—But this report hasn't fazed Jackson. He is ready to take his questions to the floor at the stockholders' meeting. Bowman's refusal to answer has convinced him that he has found some chinks in the Young armor. Whether he'll be a lone dissenter at the meeting is anybody's guess. But there are rumors that other stockholders feel the same way; that several C.&O. key men are weary of their rubber-stamp role; that various Alleghany associates are near the boiling point.

• **Figures**—Some Wall Streeters think that Jackson has made out a pretty good case—at least on one major point: that Young's insistence on streamlining C.&O.'s passenger department is costing the road a lot in earnings. The stock market, too, appears to bear him out.

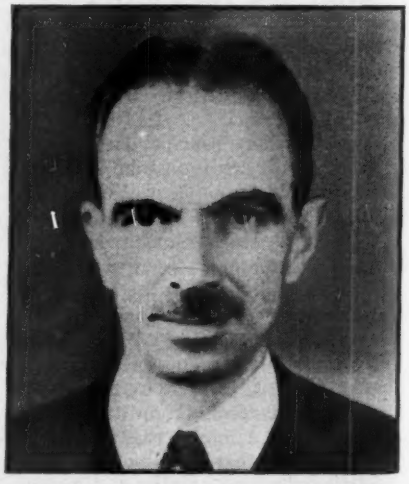
Early this week, for example, the Dow-Jones rail average had recovered as much as 48% of its recent bear market loss; C.&O. common by then had recouped 10% of its similar drop.

An analysis of C.&O.'s recent annual reports also turns up some interesting data. Back in 1932 the road converted as much as 23.8% of its total gross revenues into net income. By 1936 that ratio had increased to over 32%; in 1941 almost 30¢ of each dollar of revenue showed up as net income.

In 1942, however, the tide turned. The ratio dropped to roughly 18.3% in that year; to 15.1% in 1943; to 12.6% in 1944; to 8.1% in 1945, and to 14.3% in 1946. It's true that federal tax payments in those years were extremely heavy; in the 1941-1946 period they totaled $140.6-million.

• **Competitor's Showing**—C.&O.'s biggest competitor, however, the Norfolk & Western, paid out $184.5-million for federal taxes in the same period. And never once in those years did it convert less than 15.2% of its gross into net income.

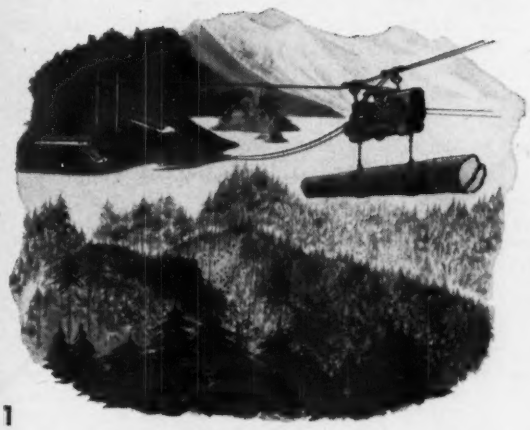
In 1947, too, N.&W. bettered C.&O.'s record considerably. Last year only a bit more than 11% of all C.&O. revenues turned up as net profits; the N.&W. showed a 21% ratio.



BANKER TO INDUSTRIALIST

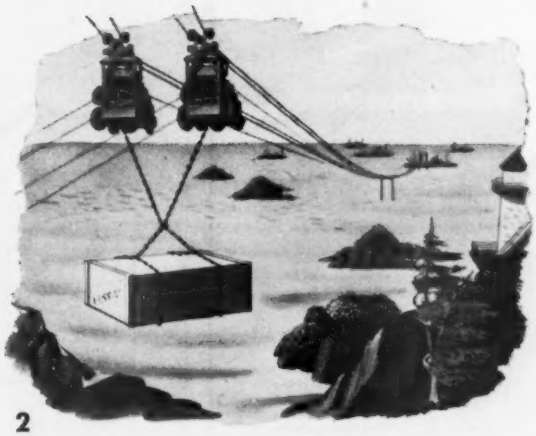
Freeport Sulphur Co.'s executive committee will have a new chairman next week. He is Charles A. Wight, a director of the company, and vice-president of Bankers Trust Co., New York. Wight will resign his post at Bankers Trust to take over the job. A Yale man, Wight is also director of Grumman Aircraft Engineering Corp., and McGraw-Hill Publishing Co., Inc.

Is the sky your limit, too?



1

Logs from dense forests or oil pipelines for Arabia. Those are jobs for Pointer-Williamette's Skyhook; the truck that travels over rivers and canyons on an aerial highway of cables. Built of automotive parts, the Skyhook scoots along the wires delivering bulky supplies to inaccessible spots. You can't use a Skyhook in your business? . . .

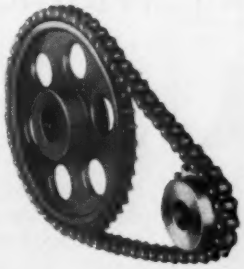


2

Maybe you can use some of the imaginative engineering that goes into developments like the Skyhook. Morse Engineers looked into Skyhook's problem. Now Morse Pullmore Clutches and positive, fast-acting Morse Roller Chains and Sprockets transmit power 70 feet in the air! "Sure, the sky's the limit in some businesses," you say, "but . . .

3

"We're in the highly competitive metal-working field. We work on volume. Our unit profit figures in fractions." Good! You're the ones Morse Chain can help most. *Wherever there is industry*, Morse has cut power transmission losses with efficient Roller Chains and Sprockets; speeded-up machines and production lines. Want more proof?

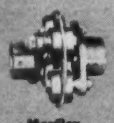


Roller Chains and Sprockets

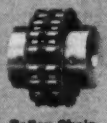
Pullmore Clutches

4

Then, call or write Department 144, Morse Chain Company, Detroit, Michigan. Morse Engineers stand ready to help improve your production facilities, increase the value of your products, and safeguard your machines. You'll discover how Morse Roller and Silent Chain, Sprockets, Clutches and Couplings can better be adapted to your needs.



Morflex Couplings



Roller Chain Couplings

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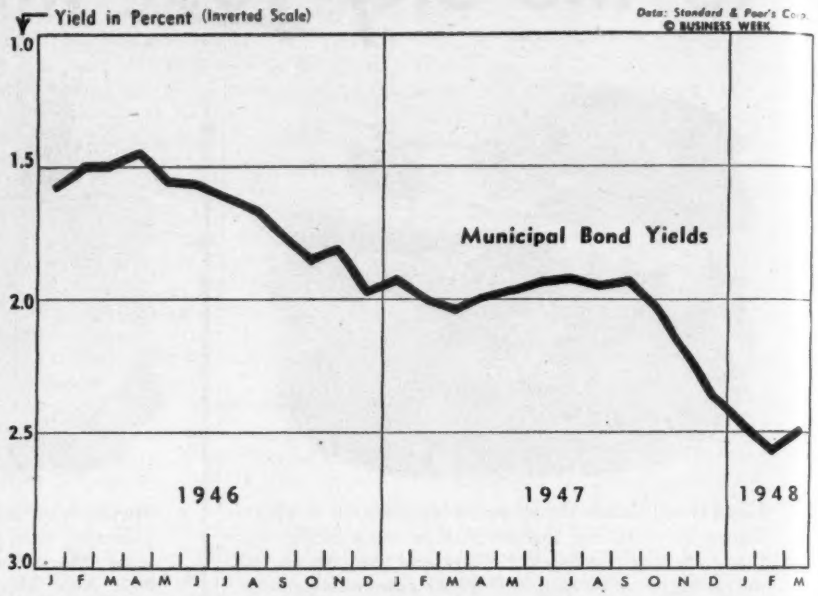
THE MARKETS



YIELDS ON BONDS move inversely with prices. Lower yields mean higher prices. This chart of yields (on an inverted scale) shows bonds have turned up

Municipal Bonds Pick Up

If their prices maintain an upward trend for long, it's almost certain that money rates on corporate borrowings will get cheaper. Whether it continues depends on armaments, taxes, scarcity.

Here's another omen for the corporate finance officer (especially if he is contemplating a trip to the money market):

• **Doing Better**—Municipal bonds are doing a little better—enough to give dealers in these securities heart. (Remember, they have had precious little to shout about for a good while).

Bond men agree that municipal bonds don't necessarily make money rates. Yet if prices of municipals maintain an upward trend for any length of time, it's probable money rates on corporate borrowings will get cheaper too.

• **The War Scare**—Basically, municipals are responding to the same stimulus that has put stock prices up. It's the war scare. And here are the advantages Wall Street cites for municipals:

Fiscal policy. There is a prevailing belief that the federal government will have to go into deficit financing. If so, the Treasury will try to keep money rates easy.

Tax exemption. This feature may gain in importance if the trend toward lower personal income taxes is reversed—always likely during a period of armament spending.

Scarcity. With the federal government competing for goods and for manpower (both in uniform and in war plants), municipalities would be forced to cut spending. This would: (1) cut the volume of new issues; and (2) increase the amount of revenue to service those outstanding.

• **Wishful Thinking?**—Some observers see a bit of wishful thinking in this optimistic analysis; they doubt that all or most of these factors will develop as soon as bond dealers think, or pull as much weight. But you can't change a bull's mind, once he makes it up.

Security Price Averages

	This Week	Week Ago	Month Ago	Year Ago
Stocks				
Industrial	150.3	145.9	136.4	143.8
Railroad	45.5	44.2	41.3	42.2
Utility	68.7	68.3	65.6	75.8
Bonds				
Industrial	119.5†	119.3	118.8	123.5
Railroad	105.7	104.1	103.4	113.5
Utility	114.1	113.1	114.2	112.4

† *Revised.*
Data: Standard & Poor's Corp.

Box Score of Stock Market's "War Rally"

Stock market traders and investors are convinced that European aid and rearmament mean no deflation ahead. They are willing to back up their belief with plenty of cash. As a result, stock prices continued to climb this week. And the buying interest was broad enough to hold Big Board trading totals above a million shares a day.

You can't tell now whether this upsweep will eventually prove to be just a sharp secondary rally in a bear market. But even those Wall Streeters who are still basically bearish will admit this much: So far, the rally is impressive. To judge for yourself, take a look at this, the tabulation of Standard & Poor's indexes of stock groups' prices.

Stock Group	Mar. 17, 1948	Mar. 31, 1948	Percent Gain	1947–48 Range High	1947–48 Range Low
Radio	102.0	123.5	21.1%	131.8	99.2
Motion pictures	145.9	172.9	18.3	236.6	138.6
Copper	109.6	*128.5	17.2	128.5	77.8
Lead and zinc	98.0	113.9	16.2	114.4	96.5
Metal fabricating	105.2	121.5	15.5	141.4	104.2
Mining and smelting	72.4	83.6	15.5	98.4	72.4
Alcoholic beverages	248.5	286.4	15.3	345.3	248.5
Textiles and apparel	199.6	229.7	15.1	236.2	190.1
Shipbuilding	165.1	*187.5	13.6	187.5	134.9
Railroad equipment	97.3	110.1	13.2	127.5	97.3
Auto parts and accessories	108.8	122.2	12.3	136.2	107.9
Paper	241.6	270.7	12.0	311.4	234.6
Roofing	133.4	148.5	11.3	159.5	125.7
Machinery	107.0	118.8	11.0	123.1	99.4
Tires and rubber goods	162.7	180.5	10.9	237.8	162.6
Electrical equipment	86.4	95.6	10.7	101.9	83.5
Fertilizer	214.6	237.6	10.7	268.8	185.9
Consumer goods stocks	112.1	124.0	10.6	142.9	112.1
Air transport	238.3	263.2	10.5	323.9	217.2
Printing and publishing	117.6	129.6	10.2	174.9	116.7
Capital goods stocks	107.3	118.0	10.0	124.2	105.6
Meat packing	140.9	154.5	9.7	170.9	140.1
Steel	120.6	132.3	9.7	138.3	110.9
Cement	124.8	136.9	9.7	165.3	111.8
Coal	224.7	*246.3	9.6	246.3	165.2
Leather	101.7	111.5	9.6	156.9	101.7
Department stores	162.3	177.0	9.1	219.9	162.3
Agricultural machinery	124.2	135.1	8.8	141.7	113.0
Dairy products	152.0	165.2	8.7	208.3	152.0
Mail-order and general chains	157.9	171.7	8.7	192.2	155.0
Railroad stock index	101.9	110.6	8.5	122.8	92.3
Industrial stock index	117.9	127.8	8.4	135.5	117.0
Aircraft manufacturing	111.3	*120.1	7.9	120.1	78.9
Automobile	106.6	115.0	7.9	132.4	106.6
Oil	151.3	162.9	7.7	169.1	134.4
Household furnishings	141.2	151.6	7.4	168.1	125.3
Utility holding companies	99.2	106.3	7.4	125.6	93.6
Chemicals	115.9	124.1	7.1	134.9	115.9
Baking and milling	131.4	140.5	6.9	165.8	131.4
Composite stock index	113.9	121.7	6.8	131.3	112.4
Office and business equipment	129.7	138.6	6.8	142.0	117.4
Drugs and cosmetics	93.0	99.0	6.5	146.3	93.0
5¢, 10¢, $1 stores	113.3	119.9	5.8	134.2	110.9
Sugar	90.8	94.6	4.2	119.1	90.8
Shoes	105.5	109.7	4.0	118.4	101.4
Containers	77.9	81.9	2.6	103.4	77.8
Food chains	159.8	164.0	2.6	192.7	156.7
Shipping	380.0	389.0	2.4	403.8	355.6
Soft drinks and confectionery	127.0	129.5	2.0	153.6	126.4
Soaps and vegetable oils	132.7	135.4	2.0	148.4	120.2
Utility operating companies	93.9	95.5	1.7	117.4	93.3
Telegraph and telephone	92.7	94.2	1.6	111.5	92.7
Tobacco products	75.9	76.8	1.2	93.6	75.9
Gold mining (U. S.)	64.2	64.9	1.1	79.0	62.9
Finance companies	86.5	85.7	−0.9	98.1	81.0

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LABOR

PICKETING DIDN'T PAY OFF for cable workers, whose unions had to give up

Cable Strike Ends in Defeat

Technological developments enable management to win one of most decisive labor victories in a decade. T-H law also helped balk union efforts to make strike effective.

Rarely in the past decade—since passage of the Wagner act—has a strike ended in clearcut victory or defeat. Compromise has been the usual form of settlement.

• **No Doubt**—But this week the New York overseas cable strike ended on terms that favor strictly one side—management.

Three months ago C.I.O.'s American Communications Assn. struck against three international cable companies. An independent All America Cables Employees Assn. collaborated with a strike against a fourth. The unions wanted a 30% wage increase and other contract benefits. Last week the two groups grimly voted to call off the strike. They admitted that "striking workers have lost this round."

• **The Terms**—The extent of their setback showed up clearly in the terms they accepted:

No contract, no pay hike for 2,200 employees of three of the companies—Commercial Cable, Mackay Radio, and All America Cables & Radio (all International Telephone & Telegraph subsidiaries).

A contract, but no pay hike for 350 employees of the Western Union Telegraph Co.'s cable department. A.C.A. won one concession from Western Union: The company agreed to change its method of figuring pensions.

In all, more than 2,500 workers left their jobs in the joint walkout. They had counted on crippled communications forcing a cave-in by employers.

But there was no appreciable cut in cable operations. The unions had missed an important fact: Recent technological developments have changed manpower needs. Just how much had not been clear before, because union contracts barred major reductions in work forces under a variety of "protective" clauses.

When the cable workers struck Jan. 2 the efficiency of the automatic and semiautomatic equipment surprised even the companies. Small groups of supervisory employees and nonstrikers were able to keep lines open and operating.

When operations weren't affected, management had the upper hand. It sought a showdown with A.C.A. under the Taft-Hartley law. The steps:

Companies asked the National Labor Relations Board to poll workers on their desire to have A.C.A. as bargaining agent. NLRB dismissed the petition Feb. 5 because A.C.A. isn't a qualified union—its officers haven't signed non-

Communist affidavits. Companies contended that this freed them from any obligation to bargain with A.C.A.

The union then sought to bypass NLRB. It went directly to Federal Court to ask for an injunction against management, alleging that refusal to bargain with the union was an unfair labor practice. A.C.A. also sued for $1-million damages, alleging a breach of the T-H law by employers.

Companies also went to court in injunction proceedings; they got a court order to bar Western Union landlines employees from refusing to relay messages from overseas. The companies contended that the workers' "hot traffic" rule constituted an illegal secondary boycott under the T-H law.

But legal maneuvers had less to do with final settlement than did the continued operations. Nevertheless, they served to remind A.C.A. that noncompliance can prove costly.

• **Personnel Cuts**—Commercial Cable, Mackay Radio, and All America Cables & Radio announced after the strike that they intend to end "overstaffing". A 20% to 25% personnel cut is likely. The companies also set up a system of "preferential seniority for layoff purposes," favoring employees who either didn't strike or who returned to work during the strike. The A.C.A. protested against "mass layoffs" and demanded guarantees against "discrimination or penalties" against strikers.

But currently, there's very little the A.C.A. can do but protest. Until it complies with the T-H law, it can't take the initiative through unfair labor practice charges filed with NLRB.

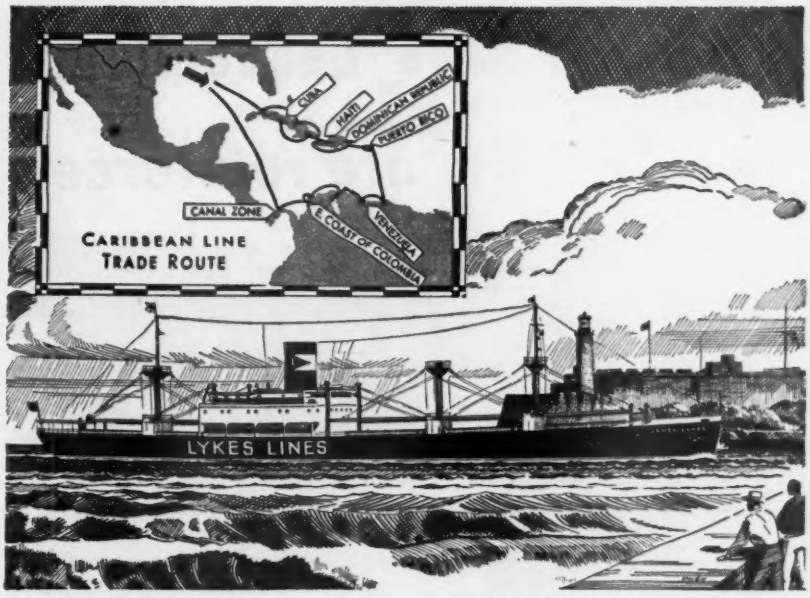
VIDEO BATTLELINES

Radio men breathed a sigh of relief when James C. Petrillo signed a musicians' contract recently. But this didn't end the labor problems of the television section of the industry; as predicted long ago (BW—Mar.3'45,p102), video now faces some major jurisdictional wars. This week the battlelines were forming.

For example: Philadelphia station WCAU-TV arranged for the first telecast of a complete opera at Philadelphia's Academy of Music.

A.F.L.'s International Alliance of Theatrical Stage Employees already has a tight grip on theater and movie backstage jobs. It has been eager to extend its hold to video. The union therefore served an ultimatum to WCAU-TV: A.F.L. technicians and cameramen would have to be used, or stagehands wouldn't permit the show to go on.

The station's technicians are members of C.I.O.'s American Communications Assn. If bypassed, the station's contract would be violated—probably knocking the station off the air. Result: The telecast was canceled.



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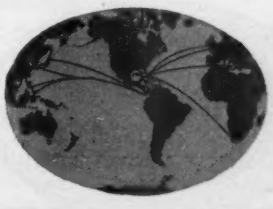

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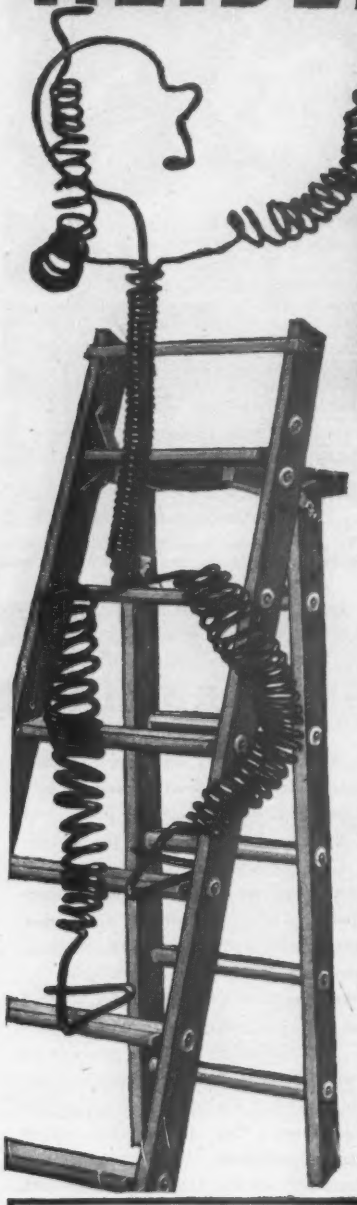

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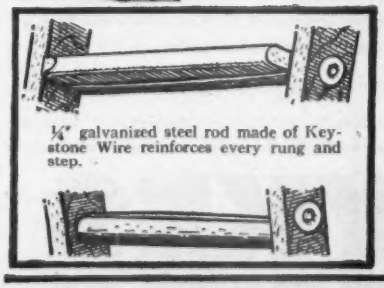

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Fitful Wage Talks

The coal shutdown has taken the steam out of U.A.W. and U.E. wage drives. Big Steel may set national pattern.

Wage talks began this week in the sprawling steel industry—where the amount labor will get as a third-round pay hike may be set this month.

• **Big Steel Talks**—Discussions are now being held by C.I.O.'s United Steelworkers and the United States Steel Corp. In all, 600 steel companies have had wage reopening notices from the union, but the terms will be decided in Big Steel talks.

The union made no flat dollars-and-cents demand in letters to employers of a large part of its 875,000 membership. It asked only for a "substantial" raise to make up what it calls a $13 weekly loss in real earnings; this leaves considerable leeway for bargaining.

Present steel industry contracts run until May, 1949. The union can't call a strike without violating its pacts.

• **Soft Pedal**—Meanwhile, there are no signs of hard-boiled contract talks in the automotive and electrical manufacturing industries. Negotiations have been under way for a month; but discussions still are in preliminary stages.

The reason generally given for the bargaining bog-down: The soft-coal strike has cut industry's coal reserves (page 25); it has taken the urgency out of contract talks in industries that might have to close production lines anyway.

• **Discussions in Detroit**—The United Auto Workers (C.I.O.) has been negotiating off and on with General Motors and Chrysler (BW—Mar.20'48,p113). So far, the union hasn't got down to brass tacks.

Is this a sign of a weakened position for U.A.W. in 1948 bargaining?

Detroit labor observers don't yet interpret the slow-moving negotiations that way. They point out that U.A.W. quietly levied a $1 strike fund assessment on members Apr. 1. The object was to add $1-million to a fund which now amounts to slightly more than $1-million. U.A.W. members were told the levy is "for emergencies in support of wage and contract negotiations."

• **Other Issues**—Two developments this week also held attention in Detroit as side issues in contract bargaining:

PENSION PETITIONS were signed by more than half of Buick's 15,000 U.A.W. members; they call on the union to press for a pension plan at General Motors, even at the cost of pay raises.

PATTERN SETTLEMENTS were criticized by the big Ford Motor Co. Local 600

NEW WAGE DEMANDS

Contract talks in steel, auto, and electrical manufacturing took most of management's attention this week. But demands were coming up in other industries, too:

Aluminum—C.I.O.'s United Steelworkers has asked the Aluminum Co. of America for "substantial" raises for production workers in eight plants. Talks start this month.

Rubber—The United Rubber Workers (C.I.O.) wants a 30¢ third-round increase. Part of it would be set aside for pensions, and a health and welfare fund. Talks will begin with Goodyear, Goodrich, and U. S. Rubber shortly after Apr. 19. The wage issue also is expected to come up in uniform contract discussions between Firestone and the U.R.W., opening Apr. 15.

Farm equipment—C.I.O.'s Farm Equipment Workers began contract talks with International Harvester this week. The union made no specific wage demand, but asked that Harvester make up a 17% loss in buying power for 40,000 employees in 13 plants. F. E. also wants the company to set up a health and accident insurance fund, streamline present grievance procedures.

Shipbuilding—C.I.O.'s Marine & Shipbuilding Workers wants "substantial" pay boosts, plus a health and welfare fund, severance pay, and other fringe benefits. Its contracts with shipyards run out, generally, on June 23; union-management talks will start in May. Last year, a contract dispute led to a prolonged shipyard strike (BW—Sep.6'47,p90).

Communications—Long-lines employees of American Telephone & Telegraph have voted to demand 30¢ hourly raises, work-week reduction from 40 to 35 hours. The present contract expires in May.

of U.A.W.; this is the first time a major union group has opposed the practice of settling a whole industry's wage demand at one basic figure. The 60,000-member local argues that pattern settlements have dealt a death blow to an old union strategy: pitting one employer against another. Many management men oppose pat-

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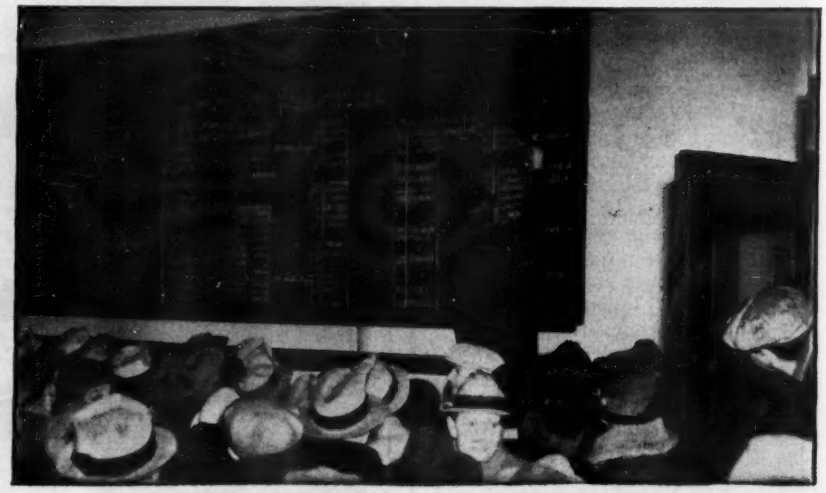
tern settlements, too; their complaint is against the unions' setting the pattern in talks with big employers, then forcing it on smaller firms.

• **Electrical Workers**—The United Electrical, Radio & Machine Workers (C.I.O.) has been talking contract terms with major employers—General Electric, Westinghouse, and General Motors. But, again, there has been no indication that negotiators are settling down to serious business.

First G. E. and then Westinghouse told the union that third-round wage increases would be inflationary, hence couldn't be justified. Westinghouse this week sent letters to employees. It pointed out that the "cost of many consumer items has leveled off or dropped"; that "what we have all hoped for—an end of inflation—seems within sight."

U. E. did not retreat from its demands for a raise to offset rising living costs; neither did it answer management with new pressures. U. E., up to its neck in jurisdictional and left-wing problems (BW—Mar.27'48,p104), isn't ready for another showdown fight—yet.

• **Interim Settlements**—There have been a few—but very few—interim settlements this year in the automotive and electrical manufacturing industries. U.A.W. has signed agreements with several smaller companies in the 5¢-8¢ range of hourly increases; all are subject to reopening after a pattern is set. U. E. also has made some "down payment" agreements, mostly at boosts of 7¢ and 8¢ hourly (with July 1 reopenings). But the interim agreements aren't as easy to get as unions found them in other years; smaller companies are making concessions only after tough bargaining.



LONGSHOREMEN await job call at San Francisco hiring hall

Hiring Halls: Job-Control Issue

T-H ban on closed shop brings fight over hiring-hall controls. Dock and maritime workers threaten shipping tieup.

The Taft-Hartley ban on closed-shop contracts is one of the hottest issues between management and labor today. It has been—and is still being—fought out in a legal tug-of-war. Specifically, unions want to keep their tight closed-shop controls over jobs; management wants to tailor hiring practices to fit the new law—which bars job discrimination because of membership, or nonmembership, in a union.

In some branches of industry, unions and employers have worked out compromises. Elsewhere, the chasm between the points of view has been widening. A dispute over the future of water-front hiring halls—key to union control of employment—has raised a serious threat of a mid-June shipping tieup.

• **Cooperation, With a "But"**—Recently, the Waterfront Employers Assn. of the Pacific Coast took a stand on the hiring-hall issue in a letter to its dock union—Harry Bridges' International Longshoremen's & Warehousemen's Union (C.I.O.). The employers told I.L.W.U. that they were willing to continue using hiring halls to employ longshoremen. But, they added, some changes would have to be made to meet requirements of the T-H law.

The association said it is willing to write into 1948-49 contracts (due June 15) provisions which would: (1) require that longshoremen be employed only through hiring halls; (2) give first call

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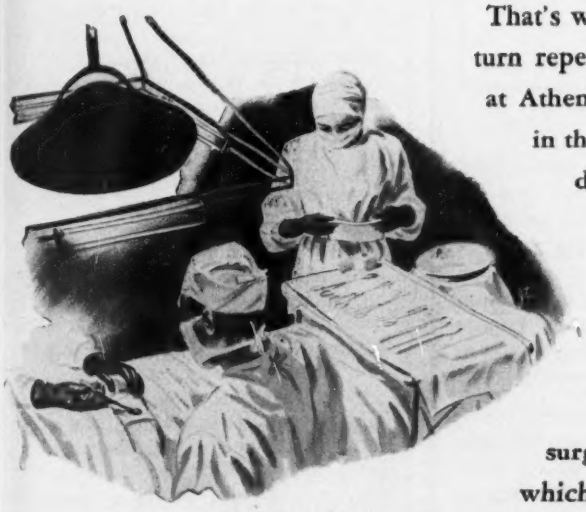

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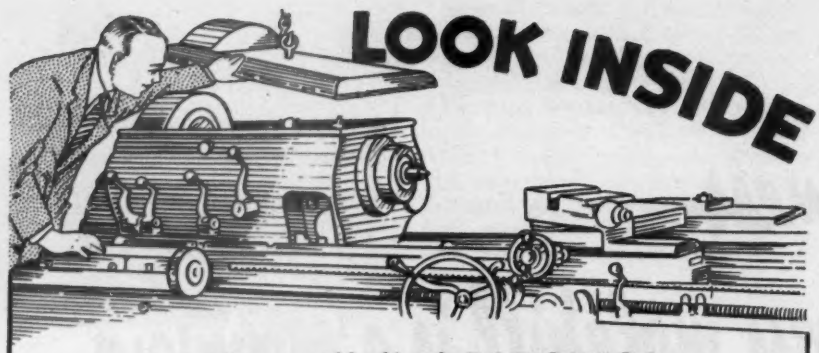

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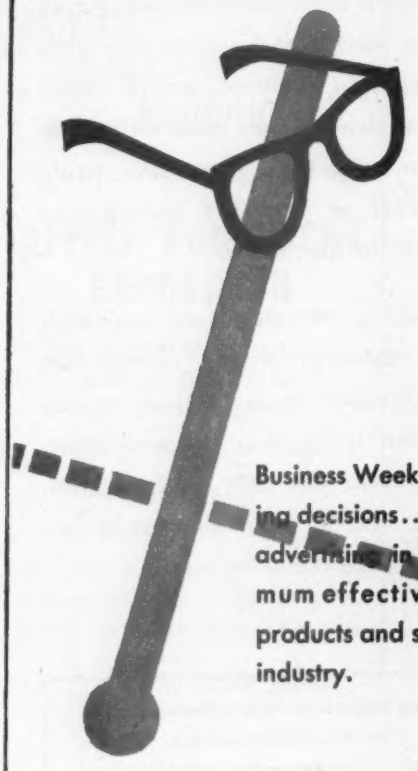

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in hiring halls to registered longshoremen; (3) assure equitable distribution of work among registered longshoremen, by sending them in rotation to job openings; (4) protect the union and its members against discrimination because of union membership; and (5) provide that the union and employers together shall decide whether the number of longshoremen on each registration list should be enlarged or cut down.

These provisions are in the association's present contracts with I.L.W.U.

• **The "Buts"**—Contract changes that the association says must be made to conform with T-H would (1) delete employment preference for union members; (2) discontinue letting the union name the dispatcher—the hiring hall officer who has the say-so about referring men to jobs; and (3) end a rule that permits the union to deny registration to any longshoreman who applies for work.

These provisions, say the association, are illegal under T-H. They make it possible for the union to register only I.L.W.U. members at hiring halls, and to refer only union members to jobs.

I.L.W.U. labeled the proposal a "shipowners' plot to kill the hiring hall, and return to the shape-up." The shape-up is a hiring policy whereby the employer's gang-boss picks his men from any workers who await jobs at a specified hiring site.

• **Others Share Problem**—The hiring-hall problem isn't limited to the I.L.W.U. On the East Coast, the National Maritime Union (C.I.O.) and the Wholesale & Warehouse Workers Union (C.I.O.) also maintain hiring halls. Recently the N.M.U. warned it would not agree to ink out the hiring hall clause in contracts due June 15.

That warning could have serious implications.

• **ERP Bottleneck?**—N.M.U.'s president, Joseph Curran, is trying to swing his union firmly to the right. He is opposed by a strong pro-Bridges leftist faction. With the leftists in the saddle, the hiring-hall issue could become a rallying cause for a two-coast strike in mid-June—if leftist strategy then should call for snarling European Recovery Program aid for anti-Communists. Curran's success may determine just how far N.M.U. will go in insisting on its hiring-hall clause. Curran is a tough negotiator, but he would be more inclined than Bridges to work out a compromise on the issue.

• **Compromise Patterns**—Recent agreements have eluded the T-H ban without changing union job rights. The loopholes are contract provisions that employment will be governed by:

Competency. The A.F.L.'s International Typographical Union has adopted a formula patterned after that used recently to iron out a New York

job-shop dispute over union security (BW–Mar.27'48,p100). It provides that a job applicant must establish his competency through tests–or procedures–set jointly by union and management. Easiest evidence of competency will, of course, be possession of a union card.

Industrywide seniority. The Sailors' Union of the Pacific (A.F.L.) and West Coast shipowners, and the International Brotherhood of Electrical Workers (A.F.L.) and the Electrical Contractors' Assn. of Chicago, worked out a policy which gives preference in hiring to long-term employees, not in a particular plant but in an industry as a whole. The theory: Senior employees almost always will be union members.

• **The Sailors' Plan**–Here's how Harry Lundeberg, president of the S.U.P., and shipowners agreed to handle hiring: Preference will be given to "applicants who have previously been employed on vessels of one or more of the companies signatory to this agreement." Since former pacts had included a closed-shop clause, this gives a hiring priority to union members.

If enough seamen with seniority aren't available, graduates of the Andrew Furuseth Training School, controlled by the union, will get preference.

Before negotiating, Lundeberg took up this solution with Sen. Taft who approved it (BW–Oct.18'47,p100).

• **The Chicago Plan**–I.B.E.W. and Chicago contractors worked out a similar plan. Job preference will go to those who for six months or more before May 1, 1948, had been employed by companies under I.B.E.W. contract–hence to union members.

Stolen Thunder

C.I.O.'s right wing beats the leftists at their own game in Michigan by actively espousing various consumer causes.

In Michigan, fights between labor's left and right wings are for keeps. To hold their own, the anti-Communists have had to do more than call the Communists names. In the Bay State as elsewhere, the Communists have long cried their sympathy for consumer causes–for better housing, for instance, and against the high cost of living. So labor's right wing has had to show that it is even more willing than the Reds to fight for the workers' interests.

• **Two Drives**–The way this works out in practice is shown by two current programs of the Michigan C.I.O. Council–as staunchly anti-Communist as Walter Reuther, its most influential member. The council is fighting hard against proposals to boost telephone

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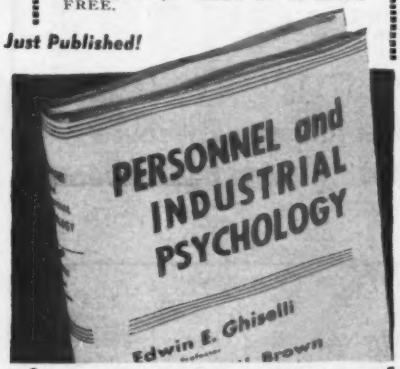

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rates, is campaigning throughout the state to eliminate the 3% food sales tax.

Communist propaganda on such points is often convincing. But the steady gains chalked up by the right wing in Michigan's C.I.O. indicate that its countermoves are even more potent.

• **Still Going On**—The food-tax drive began last week, when the council sent aides through the state to get 200,000 names on petitions asking a referendum. The petitions, printed at C.I.O. expense, point out that food taxes impose undue burdens on workers. About 165,000 names are required to initiate a vote on the matter; the council intends to go well over that total.

This program was begun just as the council took a breather in another drive. That was a fight before the Michigan Public Service Commission to block a rate increase proposed by Michigan Bell Telephone Co.—a matter, again, that the council says would react to the particular disadvantage of workers.

• **Subsidy Charged**—The council argues against the increase on the grounds that once an expansion program planned by Bell is completed, the utility's profits will rise. "If the commission grants the increase," C.I.O. men say, "it will have subsidized Bell's expansion program and its opportunity for bigger profits."

This argument is not used formally. But C.I.O. men hope it will raise doubt in the minds of commission members over the need for the increased rates. If such doubt can be planted, the council believes, its battle will have taken a long step toward victory.

• **Other Causes**—The C.I.O. council is also preparing for another appearance before the utility commission. It is gathering figures with which to oppose a recent petition by the Detroit Edison Co. The company wants to reduce discounts allowed for prompt payment of bills, and thus boost revenue without raising rates (BW—Apr.3'48,p25).

Other active stands of the C.I.O. council in recent weeks: its appearance before Detroit's Common Council to protest transit fare increases (BW—Mar. 6'48,p52); its complaints to various official bodies over the recent natural gas shortage in Michigan (BW—Feb.7'48, p22).

• **U.A.W.'s Baby**—During the natural gas shortage, the council's efforts were overshadowed by those of its biggest and most voluble member, the United Auto Workers. The auto union brought inventor L. C. Karrick to Detroit to demonstrate a new, well-publicized method of using coal to produce gas and fuel oil (BW—Feb.28'48,p38). It also put itself on record with the federal power commission and with M.P.S.C., calling for adjustment of the situation and asking for public hearings on it.

MICHIGAN C.I.O. HEAD August Scholle fights the left with its own weapons

U.A.W. has more angles on consumer benefits than any other union in the country; its ingenuity in ferreting them out makes communist enterprise look sterile indeed.

• **U.A.W. in Washington**—Last week, for example, U.A.W. appeared in hearings at Washington in support of its request for a new 5,000-watt radio station in Detroit.

The new station would be a special pleader for community advancement—there would be discussion forums, debates, analyses of public affairs from civic matters to international crises.

Washington appearances with a consumer angle are commonplace for U.A.W. It splits with the C.I.O. the cost of a Capital office devoted solely to housing problems. This office has been credited by some circles with persuading influential senators to get the pigeonholed Taft-Ellender-Wagner bill onto the floor of Congress. U.A.W. has also lobbied for river valley authorities, the St. Lawrence seaway, rent controls, and much other legislation which it felt was in the consumer's interest.

• **Effective**—Work of this sort is on a broader scale, obviously, than such localized moves as U.A.W.'s consumer cooperatives (BW—Oct.11'47,p24). But even the co-ops, highly important in the Reuther-Scholle philosophy, show practical results; thus they are far more effective than communist talk. So far the formula has succeeded with the workers. It will be continued.

The Pictures—Acme—21, 24 (top, mid. left), 28, 100, 113 (right); European—32; Int. News—19, 117; Press Assn.—24 (mid. right, bot.) 104, 113 (left), 114.

INTERNATIONAL OUTLOOK

BUSINESS WEEK
APRIL 10, 1948

The Commerce Dept. is setting up panels to work with its Office of International Trade on export controls.

Each panel consists of 25 to 30 business men. They come from trade associations, boards of trade, chambers of commerce, merchant exporters, manufacturing exporters.

The idea is to get a broad cross-section of people directly interested in particular commodities.

•

All told, between 40 and 50 panels will be set up.

A group on flour already is at work. Others are being organized for fats and oils, steel, cast iron soil pipe, coal, petroleum, textile fibers, hardwood lumber, nitrogen, tinplate, prefabricated houses.

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Don't be misled by the easing of tension in Berlin.

The Russians still want to get the Western powers out.

They'll keep trying until we make it still clearer that we don't intend to back down (page 116).

•

The Russians kicked up the fuss in Berlin to counter the West's move on Trieste (BW-Mar.27'48,p116).

Their timing was perfect. The Berlin uproar got European headlines just when the ERP act had been signed in Washington.

And Moscow managed to shake Europe's confidence in the U. S.

•

Reparations from Western Germany are due for another cutback.

Congress saw to that in framing the European Recovery Program.

Under the act, the ERP Administrator has a say-so in what plants shall be moved from Germany.

He can ask ERP countries to leave plants in Germany if this speeds up the program as a whole.

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This is the way Congress wants the plan to work:

France, say, is entitled to a machine tool plant as reparations. But the ERP administrator figures removal would be costly, time-consuming, wasteful. So he will tell France to give up its claim.

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There are no surprises in the Russo-Finnish defense pact.

It follows standard Russian lines. Only important exception is that Russia pledges not to intervene in Finland's internal affairs.

One clause has a real kick: it permits Red troops to go to the defense of Finland if it is "threatened" with attack.

•

Sec. Marshall seems to have the Bogota Conference on the right track.

One thing he told the Latin American delegates at the start: Santa Claus is dead; the U. S. government won't be lavish with credits for Latin America.

This week the idea had begun to sink in. The conference was getting down to work to speed industrial development through private investment.

As a result, the chances of guarantees for fair treatment of U. S. capital are looking up.

•

Peron is making amends to important U. S. manufacturers in Argentina.

Ford and International Harvester branches have been shut down for lack

of component parts. General Motors has been facing the same prospect.

So U. S. executives in Buenos Aires sent a memo to Peron. It complained about: (1) limitations on the transfer of profits to the U. S.; (2) hostility of the government in granting exchange and import permits.

•

Now Peron has promised—"as soon as Argentina can find the dollars—" to let the three companies import enough parts to keep operating.

It's true Argentina is short of dollars. Two planeloads of gold had to be flown from New York recently to replenish reserves. But the Argentine government has a preferred list of firms that get the dollars they need.

All Peron has to do is shift the three U. S. companies to this list.

•

Look for a boost in U. S. investments in India.

The Nehru government has just relaxed its rule that foreign capital must accept a minority position.

True, the new policy still aims at Indian control "as a rule". But the government is ready to forget this in exceptional cases.

•

The investment plan is just one part of the government's sweeping new industrial policy. Despite the stress on nationalization, Indian business men are relieved that the government won't take everything.

Basic points in the new policy are:

(1) The state will continue to own and operate railways, arms production, and atomic energy.

(2) The state will own and operate all new developments in six fields: coal, petroleum, steel, aircraft, shipbuilding, manufacture of telephones and radio (except receivers).

(3) Private owners now in these six fields have a 10-year reprieve before the state takes over.

(4) Other basic industries such as mining, chemicals, vehicles, and machine tools will be regulated but left to private enterprise.

•

Discount reports that Chiang wants to drop the reins in China.

Chiang's refusal of the presidency is just a maneuver.

He will be "drafted" as president or as head of the Executive Yuan, controlling body of the Kuomintang.

Chiang's coyness is supposed to: (1) rebuild party-backing for himself; (2) make a good impression abroad, especially in the U. S.

•

Britain's labor government has been losing ground with its working-class supporters. That's the key to Cripps' budget.

Cripps cut income taxes for wage earners. Then he slapped a special tax on investment income to make up the loss.

Higher taxes on the workingman's tobacco and beer are offset by cuts in the purchase taxes on the housewife's everyday needs.

The one concession to management was postponement of higher corporation taxes.

•

Italian industry needs U. S. equipment to modernize its plants.

But it's not slated to get much under ERP (page 113). Result:

Italian firms are dickering for private U. S. capital. Montecantini, chemical leader, is one of these. It's trying to work out a deal through New York's World Commerce Corp.

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BUSINESS ABROAD

FIGHTING WORDS from Italy's No. 2 Communist, Luigi Longo (right), have failed to check voters' swing to Premier de Gasperi (left)

Who Will Win Italy's Electoral Battle?

Anti-Communists under de Gasperi gaining steadily; now are likely to come out on top. Chances of civil war are fading.

ROME—Barring a major last-minute upset, Italy's leftists will lose the Apr. 18 election. The Communists and their allies probably won't even win enough seats to back up a demand for a place in the new government. The danger of a large-scale civil war is fading.

That's the conclusion drawn by a Business Week correspondent after two weeks of talks with Italian industrialists, labor leaders, politicians, and newspapermen in Rome, Turin, and Milan.

• **Little Change**—The coming new government can be expected to be much like the present pro-American de Gasperi regime. This means that the U. S. strategic position in the Mediterranean is apt to be held. But it doesn't mean the end of economic or social crises in Italy.

As the frantic election campaign swings into its final days, the Communist-Socialist "Popular Front" is losing ground. Premier de Gasperi has proved as vigorous a campaigner as the Communists' most passionate orator, Luigi Longo (picture, above).

• **Estimate of Strength**—Leftist leaders, somewhat shaken, officially still predict victory. But privately, the franker ones insist only that they'll get at least 40%—or enough votes to ensure their inclusion in the government.

Most businessmen and anti-Communist politicians say the Popular Front will get no more than 35% of the votes. The head of Italy's Gallup Poll estimates, that the Front will get only 30%. If these estimates prove correct, de Gasperi's Christian Democrats should come out with better than 40% of the votes (they now have 37% of the seats in the Chamber).

• **U. S. Moves Help**—International developments of the past few weeks have reversed the previous trend toward the left (BW—Apr.3'48,p118). First came the Czech coup. Secretary Marshall followed with the threat that Italy would get no more aid if it went Communist. The anti-Communist parties were, at first slow to exploit the vital ERP issue; they are now hammering this point for all its worth (picture, page 114).

The West's offer to give back Trieste made a big impression. Then western Europe's Socialist parties switched their recognition from Italy's left-wing to its right-wing Socialists. Finally came the barrage of letters and packages from Italo-Americans.

All these moves have influenced votes. And so far, Communist countermoves have been weak.

• **Results of Left Majority**—What's in store for Italy if the Front fools the forecasters and gets a clear majority? Here's what the leftists say will happen:

First will come popular demonstrations and parades of strength to ensure their call to power. Then party leaders will try to form a government of national union with de Gasperi's Christian Democrats and other parties.

This won't work, so the left-wing Socialists and others will be given the key cabinet posts, while the Communists stay in the background. This, it's hoped, will persuade America to continue its aid, and will also reassure non-Communist Italians.

• **Reform**—Then the Front will start pushing through its social program. This includes breaking up the landed estates in southern Italy. It includes nationalization, with compensation, of such industrial combines as Montecatini (chemicals) and Fiat (automotive). There will be more worker voice in management through factory committees—but no worker seizure of factories. Stricter control will also be clamped on banks, the steel industry, shipbuilding (these are already dominated by IRI, a sort of Italian RFC).

• **Threat**—But even the Communists know that a Front government would face a disastrous crisis within a month if American aid were stopped. Italy must import or die. This coming fiscal year a third of its bread grains, two-thirds of its coal, all of its oil and cotton, nearly all of its wool, and many of its metals must come from abroad.

Such materials are readily available only for dollars or sterling, chiefly the former. In the dollar area, Italy has been running a trade deficit of $75-million monthly, which has been made up by American aid.

• **The Reds Won't Help**—Publicly, of course, the Communists say that Italy

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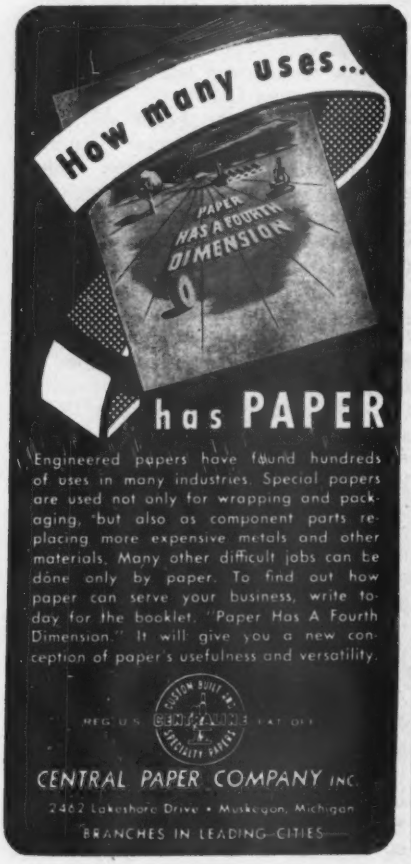
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can get what she needs from eastern Europe. But the Poles have indicated that until 1949, they can't supply even a Communist Italy with its coal needs. And neither Russia nor any of its satellites seems willing to give goods without a tangible return.

In fact, a Communist national official admitted that without American aid a Front government would be forced to take much stronger measures. "We'll have to push nationalization much further," he says. "We'll squeeze money out of those who fling it around so freely now."

Faced with industrial collapse and widespread unemployment, a Front government could only stay in power by drastic terror. This would mean either Italy's complete subservience to the eastern bloc or civil war. The Communists believe, however, that the U. S. government would rather continue aid even to a leftist Italy than face either of these prospects.

• **Results of Left Plurality**—What happens if the anti-Communists win but the Front gets more votes than any other single party? There will still be demonstrations demanding that the left be charged with forming a government. But the answer, of course, will be no. And the same answer will be given if the left asks for posts in the cabinet. In that event, the leftists threaten, the working class will find other means to make its will respected.

No one but the Communists, however, takes these threats seriously. Two factors pretty much rule out a lasting general strike or a major armed revolt: (1) Italian workers have no stomach for such a dangerous step; (2) the government's security forces are much stronger than at any time since the war.

• **Workers' Mood**—Labor leaders, businessmen, politicians, and American observers agree that Italian workers are in no mood for a costly adventure. For one thing, price drops and wage hikes in the past six months have boosted real hourly wages back to prewar levels for unskilled workers. At the same time, declining output and continued unemployment of some 2-million have made workers fearful for their jobs.

Furthermore, the dominant Communist influence is already ebbing in various unions. Political strikes or revolts would probably split the still united labor movement as they did in France last winter. They might also wean left-wing Socialists away from the Communist alliance.

• **Police Reorganized**—Public security forces have been reorganized and purged under Interior Minister Scelba. These forces total 330,000 (police and troops).

Security officials expect individual violent incidents—particularly in the north. They also admit there would be serious trouble if Tito or Stalin sent

AMERICAN AID: The government's meat is the Communists' poison

armed forces to aid the Communists. But Russia has shown no desire so far to turn Italy into a bigger Greece.

• **Results of Right Victory**—But what if de Gasperi's forces win a clear victory? Will Italy's troubles then thin out?

The answer is no. de Gasperi has indicated he wants a law regulating strikes. And the economic situation will likely lead the government to force other sacrifices on the labor federation, 7-million strong.

Industrialists, especially in textiles and engineering, point out that their labor costs have gone up sharply in the past two years; and meantime competition in the export market is getting very stiff. Their export orders—vital to Italy—have fallen seriously. They want some further devaluation of the lira and are likely to get it. But, most important, they wish to rid their payrolls of 200,000 extra workers held there up to now by government and union pressure.

The managing director of Montecatini, for example, estimates that 8,000 of his 54,000 employees are featherbedders. At Fiat last year, only 39,000 tons of transport equipment were produced by 58,000 employees; in 1939, 60,000 tons were made by 46,000 employees. A new de Gasperi government is expected to pressure the labor federation to allow the gradual firing of these workers.

• **Unkept Promises**—In the longer run, too, the outlook for real stability in Italy is far from bright. A new government will probably be—like the present one—an uneasy coalition dominated by Christian Democrats. Despite a radical program formulated back in 1944, this party has moved only inches toward social reform.

In Sicily, 80 great landowners still hold more property than 700,000 small farmers. In the cities, an American is

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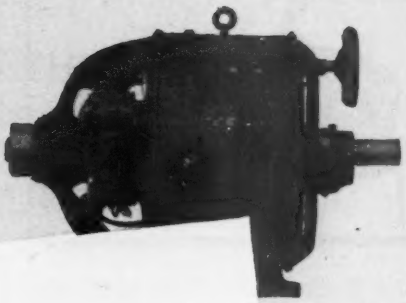

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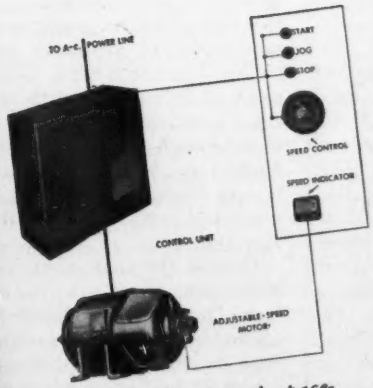

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struck by the ostentatious wealth still parading before the most bitter poverty. These conditions provide the basis for a lot of the leftists' appeal.

• **Danger in ERP**—The present government lives off American aid. A new one will, too. And here there's a second danger. To become independent economically, the Italians figure their industry will have to produce a third more than prewar. Agriculture will have to jump from today's 70% level to 80%-100% of prewar. These goals mean great capital investments, both to modernize and to expand; so far very little of this investment has been made.

The danger is that all the ERP dollars will be gobbled up for food and raw materials rather than for capital goods. Less than $40-million of the first year's program is allocated specifically to capital equipment.

BERLIN CABLE

BERLIN—By early this week the smoke was lifting from the "Battle of Berlin." The Soviet-sponsored crisis seems to prove only one thing: Moscow's bark is still worse than its bite.

The initial flurry of alarm among Allied personnel died quickly. Gen. Clay's vow to leave Berlin only on a stretcher helped boost morale. So did the Army's demonstration that it could supply the American garrison by air. And it looks as though Soviet apologies will cut short the excitement resulting from the crash of a British transport at Gatow airfield.

Even the Berlin Germans are breathing easier. Ever since the breakdown of the London conference, they have felt the Western Allies were staying in the German capital on borrowed time. But Clay's stand, coupled with the passage of ERP in Congress, is proving a surprising tonic.

BOTH THE SOVIET boycott of the Allied Control Council and the trumped-up necessity for travel curbs seemed designed to turn the Allies out of Berlin. This would be grist for Moscow's overall propaganda mill. It would allow the Soviets to (1) pin the blame for splitting Germany on the West; (2) use Berlin as a rallying point in seeking German support in the western zones; (3) show the Italian voter that Togliatti's comrades in Moscow were more than a match for de Gasperi's backers in Washington.

But so far Soviet sound and fury hasn't signified much. A door is always left open to negotiation.

MEANWHILE, Gen. Clay and the British commander, Gen. Robertson, have become more adept at playing the Russian game. They are boycotting the lower echelons of the Control Council until Marshall Sokolovsky decides to return to the fold. They are acknowledging the right of the Russians to manipulate their transportation system as they choose—up to a point. That point came when the Russians demanded to inspect Allied passenger trains. Now even this bone of contention has drifted into the negotiation stage.

Creating confusion has always been a major plank in any Russian platform. The Soviet Berlin strategy may be to jockey the Western Powers into accepting another conference of foreign ministers. The Russians' object would be to readjust their position to offset the pressure they expect from western Germany's inclusion in ERP.

•

FROM BEYOND the hue and cry of Berlin comes a report that the Soviets are going in for the production of synthetic precious stones. The site is the I. G. Farben plant at Bitterfield, north of Leipzig. Farben produced these stones in the rough for technical and industrial use. Not so the Russians, it is said. They are installing equipment and craftsmen from the jewelry industry.

Over in the U. S. zone, German technicians are at work on another line. They have developed a process for making high-tenacity rayon from beechwood pulp. This rayon is a must for Germany's tire industry. The Germans gave up on the idea of using beechwood during the war, but U. S. military government technicians have revived their interest. The new process will save Bizonia some $1.5-million this year alone in imports of high-quality cellulose pulp from Sweden. Imported pulp costs on the average $250 a ton; beech pulp can be made in Germany for 950 marks ($95 at the official rate) a ton.

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Looking for Industrial Property . . . See page 84 of the March 6th issue of Business Week. You may find what you are looking for in the

NAT'L INDUSTRIAL REAL ESTATE BULLETIN

Next scheduled insertion of this Bulletin planned for the May 1st issue, earlier publication will be made if required.

JAPAN'S MIDGET EXPORT

The "Datsum Deluxe" is the latest addition to the world automobile market. Japan's pint-size product has a top speed of 35 mph., sells for 250,000 yen (officially $5,000, in cold cash more like $1,000).

POWER FOR PHILIPPINES

The Philippine government is about to get off the ground with a five-year, $88-million hydroelectric development program.

Filemon C. Rodriguez, manager of the government-owned Philippine National Power Co., recently returned home after talks with the U. S. government about financing the project. Rodriguez is scheduled to pay another visit here this month. He expects that U. S. contractors will be asked to submit bids soon.

The five-year plan is the first phase of a long-term construction program. The plans for it have been worked up by Westinghouse Electric International Co. The planners hope to install equipment with a capacity of nearly 240,000 kw. and bring the islands' existing power plants up to snuff in the first five years.

Luzon is slated to get the biggest project, on the Agno and Toboy rivers north of Manila. Plans call for eight dams, two of which will be built under the first five-year program. When completed, the project will have a capacity of 424,000 kw., provided by a drop of 2,200-odd ft. Total cost: $59-million.

The next biggest project will be located on Mindanao. Seven dams will be built along the 24-mile Agus River. (The river drops 2,300 ft.) Two dams—one of them costing $11.7-million—will be constructed in the first five years.

The Mindanao project will be supplemented by a chemical fertilizer plant. Its projected output: 126,000 tons of ammonium sulphate fertilizer annually.

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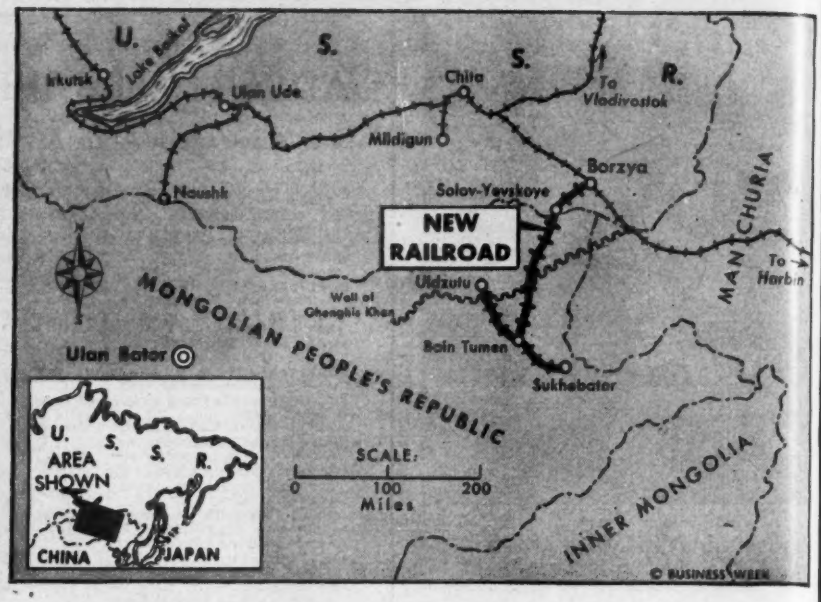

Soviet Rails for Outer Mongolia

During the war, Russian engineers built Outer Mongolia its first railroad. Tracks were laid from Borzya in Siberia to the Outer Mongolian border in 1940. The rest of the line was laid "sometime later."

The road took on special significance this week when a Tass report from the Mongolian capital of Ulan Bator (City of the Red Hero) charged that Chinese Nationalist troops from Inner Mongolia had made an "incursion" on Outer Mongolian soil. The Chinese countercharged that Soviet advisers in Outer Mongolia were getting ready for "some future adventure."

The Soviets started meddling in Outer Mongolia as early as 1924, when Red Troops helped set up a government of Mongolian revolutionaries. The move was legalized in 1945 by a plebiscite. The vote: 483,291 to 0 in favor of independence.

INDIA'S AUTOS UP

NEW DELHI—Indian automobile industry, working from imported parts, looks for a banner year in 1948. Three new plants may be completed this year: one for Hindustan Motors, Calcutta (Studebaker); one for Premier Automobiles, Bombay (Chrysler and Dodge); and one for Motor House Gujerat, Bombay (Kaiser-Frazer). The three will have a combined capacity of 20,000 units annually.

Last year 11,950 passenger cars and 9,860 trucks were assembled in India. General Motors, Bombay, headed the list with 4,550 cars and 4,800 trucks. Ford, Bombay, followed with 3,300 cars and 1,950 trucks.

Import restrictions on American products threatened to slow down operations. But assemblers can get around some of these by dealing with branches and subsidiaries of U. S. companies in the sterling area.

All Indian plants have plans to make auto components. But for a while they will have to be content with the assembly operations. There are still not enough steel, machinery, and other vital materials to do the manufacturing job.

Manufacture of spare parts and accessories within the country is increasing. Auto batteries are being turned out at the rate of 200,000 annually. G.M. plans to set up a spare parts plant in South India. Several other assembly plants have contracts with local automobile equipment manufacturers.

AUSTRALIA POWER BOOST

MELBOURNE—The Victoria State Electricity Commission plans to spend $83-million to expand the Kiewa Hydroelectric project, 160 miles north of Melbourne. The project will be two-and-a-half times as big as originally planned. This will give a total capacity of 289,000 kw.

Plans call for construction of six power stations with an output of nearly 1-billion kwh. annually. Five of the stations will be underground, will require a total of 18 miles of conduit tunnels.

Water for the project will be stored in two main reservoirs with a combined storage capacity of 182,000 acre-ft. (59.3-billion gal.). Two small dams are to be built, one at each reservoir.

To provide fuel for the project's thermal units, the commission will open a new brown coal pit and build two briquetting plants in the nearby Latrobe Valley.

Rail Freight Rates Raised 21% in Canada

OTTAWA—Tariff experts of the Canadian railways were busy this week putting into effect the first general boost in freight rates in 26 years.

• **21% Boost**—After a year of wrangling, the Board of Transport Commissioners has granted a general 21% increase. There are some exceptions:

(1) A flat increase of 25¢ per ton on coal and coke haulings;

(2) No increase, on certain hauls, for grain, flour, and feed;

(3) No increase in joint international rates between the United States and Canada;

(4) No increase in "overhead rates" on shipments passing through Canada between two U. S. points.

• **Opposition**—The board's decision followed public hearings in all nine provinces and in Ottawa. The railways met stiff opposition from seven provincial governments and from several boards of trade and farm organizations. The decision can be appealed to the cabinet on questions of fact and economic policy. But the new rates will go into effect as soon as the railways can get their schedules revised.

The board based its finding that rate boosts were needed on the 1947 operations of Canada's two main rail systems: the government-owned Canadian National Rys. and the privately owned Canadian Pacific Ry. Operating expenses, the board found, had increased some 30% since 1927.

• **Enough?**—The increase was less than the railways asked when they filed their application in December, 1946. They wanted a general boost of 30% with special adjustments for coal.

They figure they can just squeeze by on the new rates if the present high volume of traffic holds—and if operating costs don't go any higher. But labor cost is the most vulnerable item. And railway unions are currently demanding increased wages. If they get it, an application for a further rate boost is likely.

BIGGER PORT FOR CALCUTTA

The Indian government plans to spend an estimated $25-million to expand and modernize Calcutta's port facilities. The equipment will come from Britain.

Port authorities will add three new berths at the King George Docks, build new bridges at the Kidderpore Docks, and construct a new grain depot. The railway yards will be overhauled and 30 miles of new roads and viaducts will be laid out. Also on the docket is a housing project for 18,000 employees of the Port Commission.

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THE TREND

Wanted: Air Power

In a superb report on what must be done to bolster America's fading air power, the Finletter Air Policy Commission two months ago raised a series of questions about the relations of air power to sea and land power. These questions deserve a lot more attention than they have been receiving. They command increased interest now because of the increased military budget. And they have a vital bearing on (1) the future cost of maintaining a defense establishment and (2) the burden of taxation.

If the Administration and Congress would dust off the report, they would find these major conclusions of the Finletter commission:

(1) The U. S. must be ready for war. Moreover, it must be ready not for another World War II, but for a possible World War III.

(2) Defense of the U. S. must be based on air power—not on sea power, the traditional first line of defense.

(3) Adequate defense requires having a modern air force, ready and strong enough to meet an attack and launch a crushing counteroffensive.

(4) The U. S. must start now to construct this force. Never again will we have time to build an air force from scratch after war begins.

The commission recommended, in brief, that we start immediately on a program to build around 30,000 military planes in the next five years. This would provide the minimum air power needed to fight off an attack and to carry the war to the enemy. It would, for instance, provide a striking force of 700 long range heavy bombers. Even in the days of atomic warfare, that's a small force compared with the 14,000 heavy bombers used in the European theater during the last war.

This kind of an air force is expensive. The original Administration budget for fiscal 1949 earmarked about $4-billion of the $10.1-billion military appropriation for the Air Force and Naval Aviation. The Finletter commission recommended an additional appropriation for airpower of about $2.3-billion. And the commission warned that, by 1952, the bill for air defense alone may run to $10-$12-billion a year. If there is no change in the appropriations for land and sea power, the total military budget would add up to $13.2 in 1949 and might reach $18-billion by 1952.

If the services have their way, however, appropriations for land and sea power will not stand still. In a conference at Key West last month, the Army and Navy chieftains apparently outvoted the Air Force. The conference was highly publicized, but you must read between the lines to find out what really was decided. Instead of an integrated defense program that would subordinate land and sea power to the requirements of the air age, the Joint Chiefs of Staff came up with this deal: If a dollar is spent to enlarge our air power, the Army and Navy must each get a dollar too. Under this arrangement, Congress would need to appropriate a total of $17-billion in fiscal 1949, and $30-billion in 1952, to provide both the air power the Finletter commission says is essential and the sea and land power wanted by the services.

Because the Administration hesitated to ask for a military budget of these proportions, it compromised by tossing the Finletter report out of the window. In its place Congress has been asked for an additional $3-billion, of which $700-million is for planes. That's barely enough to modernize our present air force. It looks perilously like a decision to maintain yesterday's establishment to fight tomorrow's war.

We do not pretend to be experts in the military strategy line. But before the cost of a huge air establishment is piled on top of huge ground and sea establishments, we think the American public is entitled to convincing proof that the dollars going for defense are being spent effectively. As a first step, we think the military authorities should get together on a program that will provide the proper doses of air, land, and sea power for adequate security in this uncertain world. In so doing, we hope they will come up with a study that matches the high standards set by the Finletter commission. That would be the way to convince the American people that the U. S. has the best possible peacetime military establishment—and one that will be ready for war.

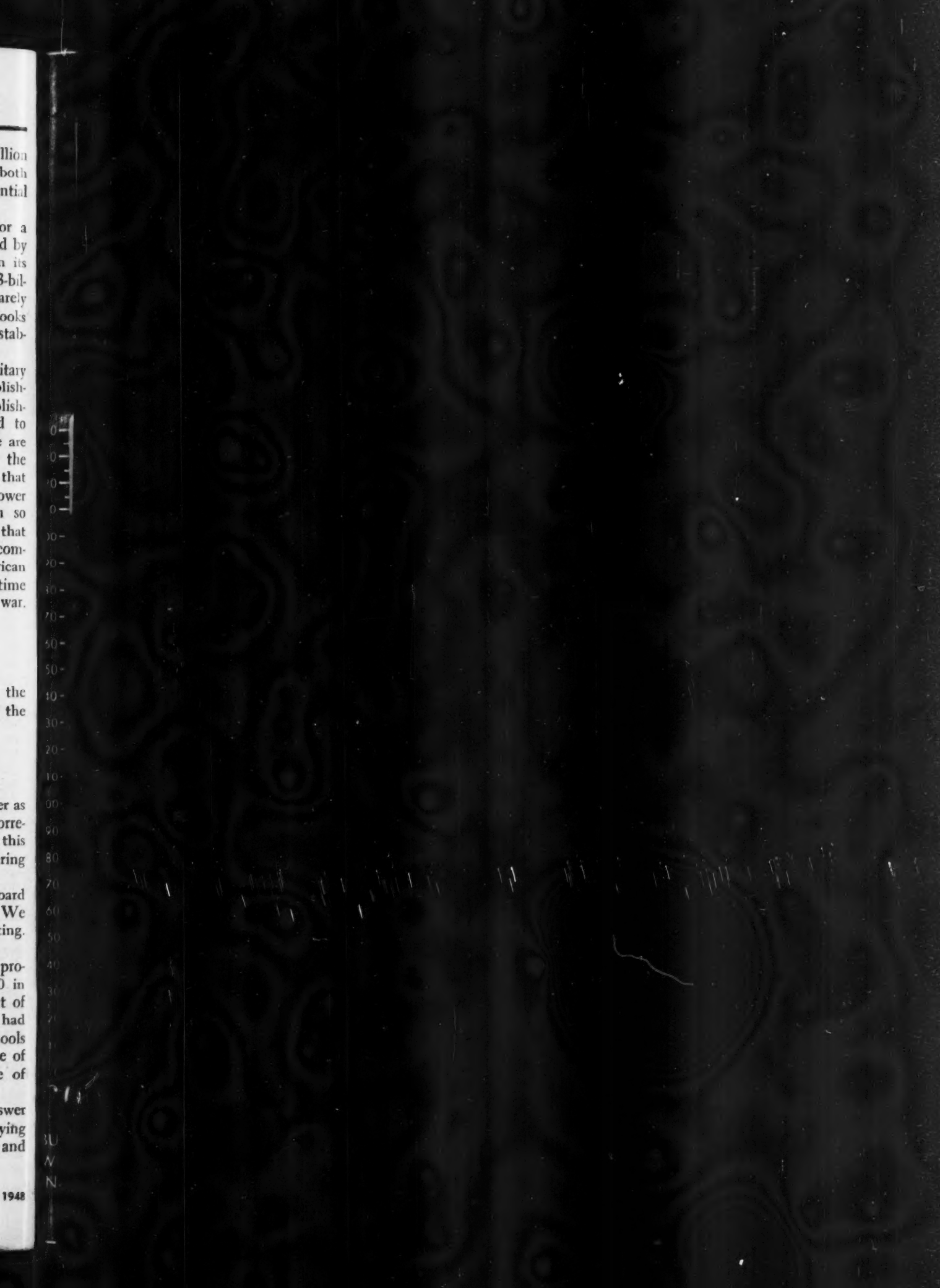
The New Order

A Philadelphia correspondent recently sent us the following clipping from the help-wanted columns of the Inquirer:

> BRICKLAYER—Master Mechanic not less than 10 yrs. exp. to supervise apprentice training for local institution. Sal. $4500 yr. State age, education, exp. T-372 Inquirer.

Perhaps balanced between embarking upon a career as a bricklayer or professor of engineering, the correspondent asked: "How many colleges could offer this much for a full professorship in any of the engineering courses?"

In a report of the President's Scientific Research Board we found at least a partial answer to this question. We think you and our correspondent will find it illuminating. Here it is:

"Two-thirds of all college and university science professors and instructors received salaries under $4,000 in 1946. . . . In the smaller schools [that includes most of them] even the men with 30 years' experience had [median] incomes of only $3,300. In the larger schools men with 15 years' experience had a median income of $4,500, men with 30 years' experience an income of $4,700."

If you want to get ahead in a material way, the answer seems fairly clear. Become a professor of bricklaying rather than a professor of engineering. Or get busy and do something effective to change the deal.